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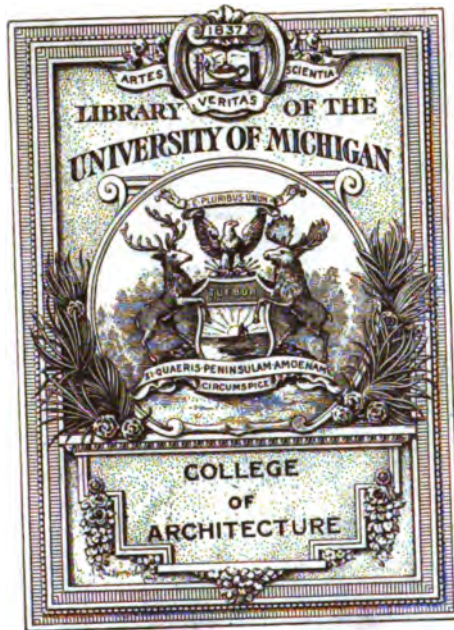
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ARCHITECTURE AND BUILDING

A Magazine

Devoted to Contemporary Architectural Construction

ESTABLISHED 1882

VOL. XLVI

JANUARY, 1914 — DECEMBER, 1914

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ARCHITECTURE AND BUILDING

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January, 1914 — December, 1914

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ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

Volume XLVI

JANUARY, 1914

Number 1

These preachments are addressed to architects and builders, of course. To whom else should they be addressed when written for this magazine? Architects' clients and builders' customers—if that is the right word—are also fondly desired as part of the audience. Every one of them will be the better for my medicine if I can only get them to take it—if I can only get them to listen.

But this serious, sad, savage world never voluntarily stops to listen unless it can be entertained. Amusement, first, last and all the time—unless the pause is caused by some catastrophe—the train off the track—many lives lost and more injured. That is not a voluntary stop. You architects who never read anything but the higher criticisms by professionals and you builders who read only the lists of contracts to be let—perhaps you have—one or two of you—read those last sentences and wondered what they mean. Read them again. The meaning is plain enough after a while. And be glad that I write up to you instead of down as so many popular writers do. No, gentle reader, you must be entertained, whatever else you may or may not be.

And here I come to the writings of Mr. Thomas Thumtack, architect, whose work on architecture I have had the privilege of reading in the manuscript. The editor of *Architecture and Building* informs me that these articles will appear in most of the numbers of this magazine during the present year.

Who could fail of entertainment reading the first instalment, which is printed in this number? I have been a witness myself of an experience almost exactly similar to that of the man whose wife planned their house but who "got Inigo Jones to draw it up for them." "We got my friend Chris Wren to put in the stairs and chimney," says another.

Well, there's a pretty house building two doors from the place where I abide and I have been very much interested in it. The owner told me he designed the house himself.

"Did you draw the plans yourself?" said I.

"Yes," said he, "at least I drew the front. The builder"—a man in overalls whom he presently introduced me to—"drew the sides and the rear." I won't tell where he got the plans, but he made them himself with the builder's help.

The house is now advanced so far that they are putting on the canopy over the front entrance. I inspected the job with the owner the other day and he explained to me about the stairs which had not yet been started.

"They're going to be very pretty," he said, and so they were, by the way. "The fact is," he continued, "I got an architect to draw the stairs and the front entrance," referring to the canopy over the doorway and two seats flanking it.

It was only a few days after this conversation that I saw among Mr. Thumtack's chapters the one entitled "Architect vs. Client," and I thought with Artemas Ward, "How true!"

Architects in the State where this house is building must be licensed. The owner can file the plans with his name as owner and no architect's name and no license is required; or the builder's name can go on and he, too, will be immune from any examination as to his fitness or any license fee. (I should like to say in in this connection that I had nothing to do with this nefarious state of affairs. It was part of the law before I ever heard of it, not to say lived in such a barbarous country. In fact, I think if I had known in time I should have settled in some other State.)

There are more of these Thumtack articles that are just as entertaining as the one herewith. In fact, it is an embarrassment of riches. There is one entitled "Contractors" that appeals to me most of all, but I suppose it is for personal reasons—or a matter of taste.

"The Unfinished Inscription" is one that will be found to strike home, too. And the one on "Specifications" has as many laughs in it as anything Mark Twain ever wrote. At least that's the opinion of this critic. And the one on "The Seats of the Mighty"—but read them yourselves, good people, and have a treat.

What is it that the great American Poetess of Passion wrote?

"Laugh and the World laughs with you;
Weep and you weep alone."

And you, architects and builders, take a good-natured look at yourselves. Architects, remember that you are human after all, even if you do occupy a position which temporarily gives you almost the power of life and death over some poor devil of a builder. Remember the owner and his agent, especially when either one of them is a bargain driver. They skin you too in these days, don't they? And you builders, oh, you builders, what shall be said to you? Well, you will get a good picture of yourselves when you read Thumtack on "Contractors."

Theodore Starrett.

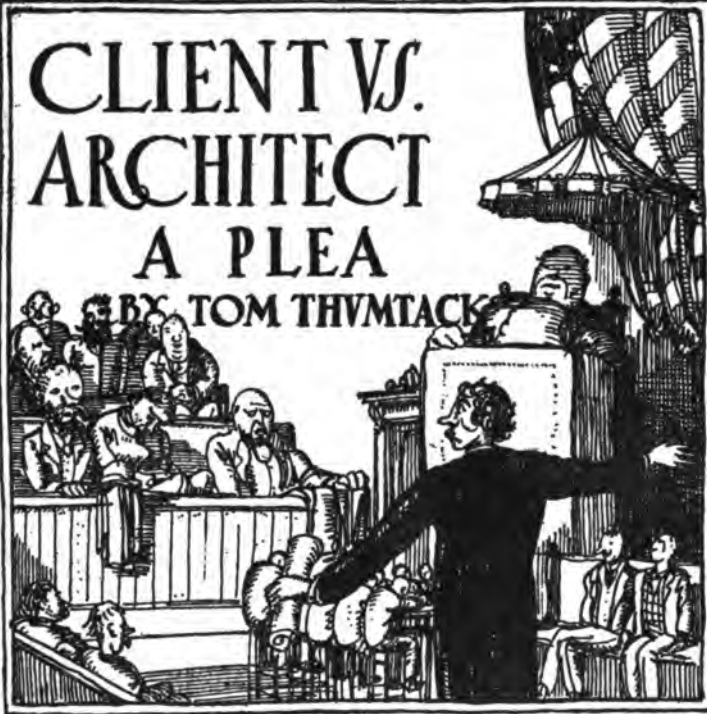


Portrait of the Author

ARCHITECT-TONICS

CLIENT VS. ARCHITECT A PLEA

BY TOM THVMTACK



We used to say at college that football would be a gentle game if only one side played it. Architecture would be a fine profession if it were not for the clients.

Everybody has heard of the shortcomings of the architect and his general uselessness. Doesn't it make you homesick to hear the familiar boast, "My wife planned our house, but we had Mr. Inigo Jones draw it up for us," or "This house is my idea, but we got my friend, Chris Wren, to put in the stairs and chimney," or "I planned the inside and Laura planned the outside, and the only thing Mike Angelo did was to make them fit together." It is therefore demonstrated beyond all peradventure that the architect is, at most, a mere convenience.

Is he even ornamental? Let's put one ear to mother earth and find out what those rumblings mean. You'll note that most artistic criticism is directed toward a neighbor's architect because to criticise one's own after having planned the house oneself is too much of a boomerang. Let us listen to the public. "I don't think Mrs. Buster's architect, Don R. Tello, did just the proper thing in supporting that central overhang on those Ionic columns," or "Jones's architect, old

man Richard's son, copied their mausoleum from the cutest little bungalow I showed him in Keith and Proctor's magazine."

His professional ability doesn't stand even for a second when the public gets after his more vulnerable spot, his real Achilles tendon. We have seen that he is probably neither useful nor ornamental; but he certainly, positively, absolutely, isn't *practical*!

Beneath this avalanche of unanimous opinion lie hidden all his virtues and there is left protruding through the debris only the tattered banner that "He had ideas." Some day when a small part of the public in my hearing says about a fellow architect that "he has ideas" I'm going to pull a gun on him and find out what he means. He has ideas! Well, so has a dog, lots of them, more ideas than fleas. So has a pig or he wouldn't get both feet in the trough. So has the early bird or he wouldn't get the worm. Has ideas, forsooth! If he didn't have ideas he would be an idiot. Ideas are all that separate the animal kingdom from the vegetable. No, I won't hold up the rascal who tells me that his architect has got ideas. I'll wait until a smaller man makes that asinine assertion and then I'll hammer the eternal daylights out of him, and when I've got him down and his head firmly planted in the mud I'll lambaste him over his echoing konk to the tune, "Why don't you get an idea of your own?"

But I digress!

The whole known world damns us with the word *impractical*. With the frequency of drops of water which will wear out the hardest stone your brain has been corrugated with Mr. Newcamp's remark that his forty-thousand-dollar bungalow is all right, but the impractical front door sticks; or Mr. Newfactory's job is a good piece of construction, but the impractical plaster has cracked for more than a foot right over his desk; or Mr. New-Palace is greatly pleased with everything except that the water freezes every winter in the impractical Italian fountain; or Mrs. Littleshack didn't get a practical door knob; or Mrs. Tinybrain got a most impractical kitchen sink.

You have us dead to right, oh clients! You have plausibly contended that the profession is probably neither useful nor ornamental, and you have demonstrated that it is impractical. How about yourselves? You and your friends around the festal board of your new home have hugely joked about your architect. Don't you suppose he ever laughed at you? Hasn't it occurred to you that he may have gone back to his office and caused a gentle ripple of amusement because you wanted to back the kitchen range up against the ice box or because you and wifey fought like cat and dog over the wall paper before you'd even bought a lot?

I want to tell you all a story about an Alabama judge, newly elected for political qualifications by a cracker constituency. After hearing the first lawyer's argument he didn't wait for the adversary, but gave his proud decision, "The prosecush gets it." When it was explained that there were at least two sides to every legal argument, he said he wanted to be perfectly fair and would just as soon hear

the other fellow, too. After that worthy's fervid presentation, the judge slapped his leg and yelled, "Now don't that beat the devil! The defense gets it after all!" A lawyer, not an architect, told me this story, so it must be true.

We've patiently listened to the prosecush, and Judge Public has decided that the client gets it. Wait a bit for the defense, and maybe you'll be an Alabama judge before Attorney Thumtack sits down amid a storm of wild applause. We'll now begin the defense of justice. I'm not going to say Chris Wren did this and so and therefore he is practical, useful and ornamental. I'm simply going to tell you a few true stories and maybe you will say yourself that Winifred Client is not a proper judge in architectural matters. At the end, you may slap your leg or some other person's leg and say Jack Client hasn't got it all by any means. People who live in glass houses shouldn't throw stones. (Pause.) (Attorney for defense takes drink of water.)

Gentlefolk of the jury (this story may outlive anti-suffrage), I once had a client who asked me to plan a house for himself and wife and children. Four of the children were boys, four were girls and one they couldn't name with any certainty until about a month after the house was started. It was a long job, and just before it was completed they were racking their brains for a tenth name. They have now lived in the house two years, have used up two new names and are very short of room. So they tell all their neighbors now that Mr. Thumtack may be a pretty good architect, as architects go, but he certainly is not practical. (Laughter.) (Juror No. 3 wakes up with a snort.) (More laughter.)

I see before me a group of most intelligent jurors, and they look as though they have big hearts as well as intellects; so I'll try to touch those hearts. I had built a big house in the Adirondacks, a long and trying journey from New York. It was completed in the winter and was opened not by prayer but by a Christmas party. There came to me a telegram from the owner, a regular cry from Macedonia, "Come help us; not a single chimney draws; house filled with smoke. (Signed) A. Bungling Low."

I celebrate Christmas myself. I hang up the Christmas stocking. I also hang up the Christmas toy dealer. An architect has Christmas feelings like the rest of you. He amplifies his abdomen with sofa cushions and sticks wool whiskers on his leathern countenance to imitate old Santa Claus. But no Christmas bells for me! I beat it for Soot Lake and arrive on Christmas eve, eleven miles by sleigh, thirty below zero, no dinner, one frozen ear and a frost-bitten foot. The house is full of smoke, that's perfectly true; the chimneys don't draw, that's also true. I go to every fireplace and find *every damper shut*. After losing one Christmas turkey, one night's rest, one ear and one big toe, I find that it is all because the owner didn't know enough to open up the dampers. I open them up and then go home, and the smoke goes up the chimney just the same. Mr. Bungling Low now tells his friends that Camp Igotitinwallstreet is a pretty

fair little shack but he fears that Mr. Thumtack is not very practical. (Laughter and applause.) (Dog comes into court room.) (Exit dog, and commotion.)

Dear people of the jury, some of you are large and well-grown, especially where the equator of the waistcoat laps the meridian of the pants; and so may breathe a trifle audibly. Some of you are thin, and to an acute architect-legal mind like mine that points as plain as a pikestaff to the fact that in your cultivated home there waits for you a very much better-half whose garter of some years ago would hardly make a barcelet now and whose belt of former days would barely hold the place that bracelet has left vacant. You also know about loud breathing and will appreciate this story. Mr. Bul wanted his bedroom separated by at least one large one from the room his wife would occupy. When later Mrs. B. came in and blushing besought me to put a room between her and her Jim I relieved the tension of the situation by telling her that I already knew the sadness of their separate private lives, however much they had befooled the public. Imagine my consternation when Mrs. B. flashed daggers at me through her blazing eyes and begged to inform me that she and Jim loved just like turtle doves, but that if I forced her to tell things that weren't any of my business the real reason for the separate rooms was that Jim snored something fierce! And now Jim tells his Wall Street gang that "Mr. Thumtack may be a good architect all right, understand, but he's a damn long ways from being practical!" (Laughter, applause and cat calls.) Jim may tell them how impractical I am, but you can bet your life my whole office snores and snorts after Jim goes down in the elevator; and our little Lizzie Shorthand questions every feller about his vocalsomnia before she goes with him too often to the movies. (Snores and laughter.) (More laughter.) (Somebody starts a fight outside.)

Jurors, I have more than counterbalanced the sinuous and insidious assertions of a learned counsellor for Mr. Client; I now crave the close attention of your really splendid thought-absorbers, while I sum up.

Friends, who will soon judge this defendant! I've not gone into any of the really mean and little things that our opponent puts upon us. I've told you nothing of the bickerings in his divided family; I've told you not at all of his demand that we perform the miracle of meeting immutable conditions at fixed prices. I refrained from demonstrating that he is always the real cause of running up the cost beyond the appropriation. I have refused to state that he always tries to bond his agent to become responsible for his own shortsight and his own shortcomings; I've simply told you that my adversary claims that I am impractical, because:

(1) I didn't foresee the way he purposed to increase and multiply his family.

(2) I hadn't told him to open up the dampers.

(3) I didn't know he snored.

I see the light of kindly comprehension shine from your noble

faces. I feel the warmth of sympathy your kindly hearts are radiating. I perceive that you have followed the logic of my poor eloquence. I know * * * (Prolonged cheers, stamping of feet, hand clapping.) (Voice from the crowd.) "Now don't that beat the devil; the defendant gets it, after all!" (Cheers, tumult.)
(Curtain.)





MORE ABOUT TRELLISES

By J. L.

III.

SUSCEPTIBILITY to architectural beauty is, in my opinion, one of the most enjoyable faculties that one can possess. It has its drawbacks, 'tis true, for the capacity to enjoy carries with it the capacity to suffer. So very many of the architectural monuments in this country are not of a character to appeal to one's susceptibilities. But we must take the bitter with the sweet. In this case Reason provides an anesthetic made up of part charity and part pity, with a mixture of amusement, which the sensitive soul can conjure up to allay the agonies which would otherwise be caused by gazing on some of the architectural monstrosities which encumber this land. Besides, it is all imaginary. Ugliness cannot hurt us. Architectural ugliness may be unpleasant but no one's appetite need be impaired by it. On the other hand, the pleasure that is produced in the susceptible mind by gazing upon one beautiful architectural object is worth going through miles of ugliness.

I never shall forget the first time I saw "Wyck." I was on a trip in a motor car from New York to a town some thirty

miles west of Philadelphia. With the aid of maps we had entered the northern confines of the City of Brotherly Love and were cutting across lots to the west. We were steering by compass, as it were, as the map which we had gave no information as to the quality of the roads. The fact of the matter is, I think, we came pretty nearly getting lost. Turning first this way and then that way, we found ourselves on a clean old-fashioned street with granite block pavement and a double trolley track in the center. Great trees on either side sent their branches to meet in the sky over our heads. In a moment we saw the sign "Germantown Avenue." I knew where we were now—I mean I could locate our position on the map. A more beautiful place I never had toured in, it seemed to me, even though the infernal car tracks spoiled the going.

All of a sudden ahead of me I saw something—a house—on our left. It was one of those long, simply lined, straight-roofed affairs that our old Colonial ancestors seemed to be so fond of. At a distance its shape appealed to me. As we rolled closer to it I recognized it. It

was the original "house in Germantown" whose pictures I had seen and admired so many, many times. I wish I could describe the pleasant glow—almost a shock—that passed over me as we drew abreast of it and stopped for a moment to drink it in. There stood that famous old house in all its simple, indescribable beauty—for no picture can do it justice, I think. There were those trellises, as simple as the house, that have been copied—I should not say copied, perhaps, because that is an invidious word—that have inspired the designers of a thousand homes in America. But time was precious—it always seems to be when one is out in an automobile—and we had to be moving.

That was the first time I saw "Wyck"; but it shall not be the last, I vow. I am going to Germantown again some day.

"Wyck" was built in 1690. Whether those trellises are a recent addition or whether they were applied to the house in its early infancy I do not know. It does not matter.

I am writing these stories for the benefit of homely people like myself—people who would be interested to add little touches, more or less simple, to their houses and their gardens, not to mention their chicken houses and garages, for, of course, only the rich have stables nowadays. The addition to one's porch of a trellis on which vines may be trained; the application of a trellis to a blank space of wall; the building of a grape arbor or the beautification of a fence—all make for increased interest in outdoor things, first in the doing and then in watching Nature add her part. All work of this sort about one's abode should be encouraged.

Architects and designers have not been asleep to the possibilities of the trellis—far from it. Some of the most elaborate decorations in the most gorgeous of our

American palaces, in our great hotels, for instance, are nothing more nor less than strips of wood applied to wall and ceiling.

As the reader may remember, I spoke of the friend of the folks who built the grape arbor telling them that the most costly thing that they could undertake would be a trellis construction in their back yard. I have in mind even now an Italian garden near my house whose principal feature is an elaborate system of trellises built of heavy lumber, halved, mitred, dovetailed and bolted together in panels, which must have cost a pretty penny; and as I gaze at the work I am

constrained to say, though I shouldn't, that I think my neighbor of the glen side has a better looking job for one-tenth of the money.

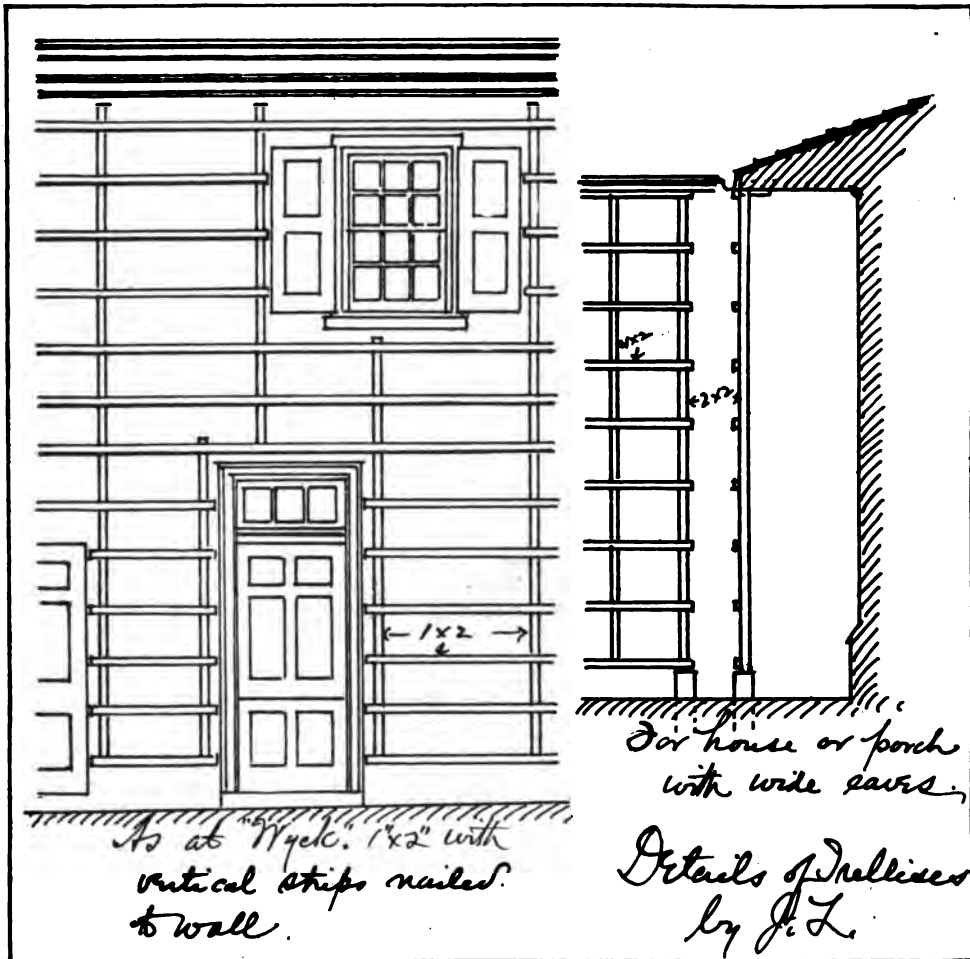
The beauty of the trellis is that everyone can have it, and, what is more, and, what is better, the simplest ones, the cheapest ones, are generally the best. Witness "Wyck."

There may be said to be two general types of houses built in America at this day: the one with wide eaves, popularly called the California bungalow style but really Swiss Chalet style, and the other the Colonial or perhaps the pre-Georgian style, with a quasi-classical cornice with a slight projection. I wish to say right here that I scorn to know whether it is Colonial or pre-Georgian, or what. I have just finished reading an article about "Wyck" which says that that house is pre-Georgian, and I know the author knew what he was talking about.

The two types of houses call for different treatments of trellises. The pre-Georgian type (I trust you get my meaning, gentle reader) takes a trellis that is applied to the wall of the house; the California bungalow type calls for a trellis that stands as far from the wall as the eaves project. I have drawn details



Door to "Wyck," Germantown.



of the two styles and I want it to be understood that both are from buildings that I have seen in my rambles through New Jersey and Pennsylvania. There's nothing original about either of them.

I knew of a house where the eaves are rather wide and where the trellis was built against the wall. It has been found that the wide eaves prevent growth of the vines at the top, owing to the fact that they are in the shadow, and the owner intends next Spring to set the trellis out on the line of the edge of the roof.

There is another point for the man or woman who is interested in adding to the home landscape with trellises, and that is the size of the material to be used. In the Wyck house I am under the impression that the strips are about one and a quarter inches thick by two and a half inches wide. I did not measure them;

I have only my memory of having seen the house once and having seen, I am sure, a thousand pictures of it. For present-day use a strong trellis can be built of one by two or a light trellis of parting strip stuff, five-eighths by three-quarters. These two sizes are in stock in every lumber yard. Intermediate sizes are not hard to obtain. I know of one job where one by two strips were ripped by hand, making one by one, which is considerably more rugged in its appearance than where the trellis is made of parting strip stuff.

But perhaps, dear reader, you live in a rented house and are only interested in this stuff in an academic way, as they say. But if you live in a rented house maybe you would like to plant some sweet peas this coming Spring, a short row of them, only six feet long we will say. Well,

why don't you go to a lumber yard and spend fifty cents for a handful of parting strips and then make a little fence for your sweet peas to grow on, with the strips driven into the ground, say six inches on centers and with cross strips nailed to them, say eight inches on centers? Make the vertical members plumb and the horizontal members level, even if the ground slopes. Paint the con-

struction with ten or fifteen cents' worth of white paint, and if you have planted your sweet peas right, digging the soil very deep beforehand and with some fertilizer to insure strong growth, all as per directions in the seedmen's catalogues, you will have something pretty to look at after the weeks have rolled by and you will say that the money you spent on the trellis was the cheapest thing of all.



RESIDENCE AT GREAT NECK, L. I.

THE MONTEFIORE HOME

By C. W. H.

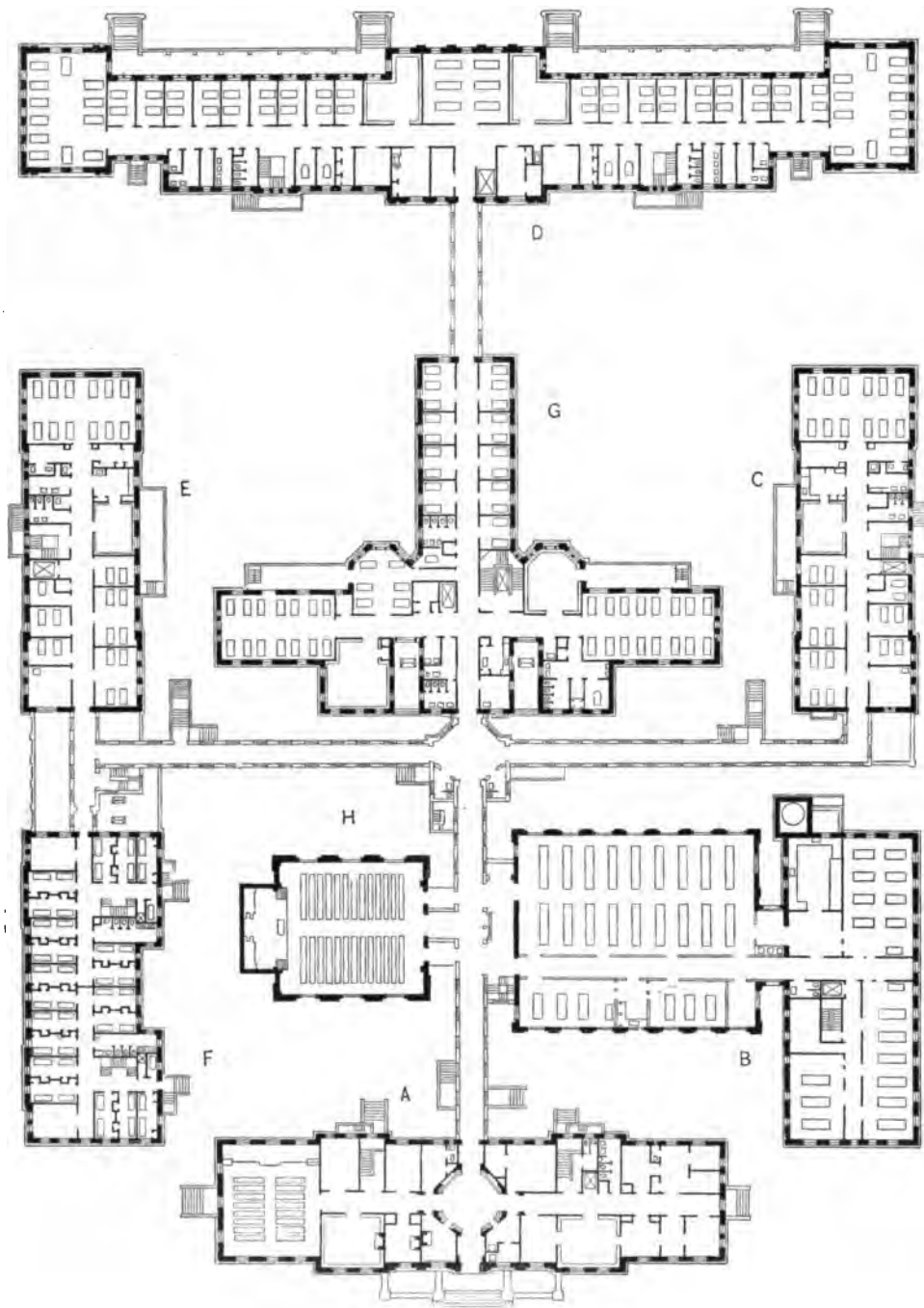
The buildings for the Montefiore Home would be worthy of a visit if for nothing else than to study the group planning. When the new site in the Borough of the Bronx was procured, extending between 210th Street and Gun Hill Road, an agreement between the city and the directors of the home was entered into whereby a street was closed which would have run through the centre of the present site, and it was provided that no building should be built nearer than 60 feet to the building line of the four bounding streets. This provision required by the city is a distinct improvement to the group as a whole, both from an architectural viewpoint and from other considerations, as in this way the buildings

will always be surrounded by a wide air-space and assured of sunlight, ventilation and a certain amount of seclusion. Thus set back from the streets, the noise from street traffic is diminished, a factor of value to a hospital.

The administration building faces north on Gun Hill Road, and extending away from this to the south is the group of eight buildings which comprises the hospital plant. On the east is the servants' dormitory building and the surgical pavilion. On the west is the commissary building and mechanical equipment with the medical pavilion beyond. Closing in the south side on 210th Street is the tuberculosis pavilion standing apart from the rest. In the centre of the quadrangle



THE ADMINISTRATION BUILDING FACADE TO THE NORTH.



MONTEFIORE HOME, GUN HILL ROAD, BOROUGH OF THE BRONX, NEW YORK.
 A, Administration. B, Dining Hall. C, Medicine. Arnold W. Brunner, } Associated
 D, Tuberculosis. E, Surgery. F, Servants' Dormitory. Buchman & Fox, } Architects.
 G, Dormitory. H, Synagogue.



THE BUILDINGS FROM THE NORTHWEST.

formed by these buildings, immediately behind the administration building, is the synagogue to the east and the dining pavilion which is intimately connected with the commissary building to the west. Beyond these is the main dormitory building, a T-shaped structure of large size, planned to accommodate many patients.

The capacity of the new plant is sufficient to provide treatment for 500 sufferers from chronic diseases, and the arrangement and grouping of the buildings is such that this may be done at a minimum expense in operation. The present investment in the buildings and their site is approximately \$2,000,000, and the operating expenses for maintaining the hospital will approximate \$300,000 a year.

The provision for communication be-

tween the buildings is well thought out and an intimate part of the group planning. A central covered corridor, known as Memorial Corridor, and providing wall space for memorial tablets and inscriptions, extends from the centre of the rear of the administration building directly to the main dormitory building and thence to the tuberculosis pavilion. It connects on either side with the synagogue and dining pavilion, and just before entering the dormitory pavilion it is met by a transverse corridor which gives access to the surgical pavilion and servants' dormitory on the east and the medical pavilion and mechanical equipment building on the west. This covered corridor affords convenient communication through the buildings in any weather and at the same time gives the necessary



THE PAVILION FOR TUBERCULAR PATIENTS FROM THE SOUTH AND WEST.

Builders: Hedden Construction Co.
Knickerbocker Portland Cement used.
Cornices, Skylights and Roofing: Architectural Metal Works.
Standard Plunger Elevators.
Hot Water Regulators: Standard Regulator Co.

Arnold W. Brunner, Buchman & Fox, Associated Architects.



THE EAST SIDE SHOWING THE SURGICAL PAVILION AND SERVANTS' DORMITORY.



THE WEST SIDE, SHOWING THE MEDICAL PAVILION AND DINING HALL.

Builders: Hedden Construction Co.

Brick: Fiske & Co., Inc.

Star Expansion Bolts.

Vacuum Cleaner: Vacuum Engineering Co.

Habirshaw New Code Wire Used.

Sidewalks: Schouler Cement Construction Co.

Loomis-Manning Filters.

Knickerbocker Portland Cement Used.

Cornices, Skylights and Roofing: Architectural Metal Works.

Tile: Wm. H. Jackson Co.



LOOKING WEST IN THE MIDDLE OF THE GROUP TOWARD THE POWER PLANT,
SHOWING ON THE LEFT THE DORMITORY PAVILION AND ON THE RIGHT
THE SYNAGOGUE WITH THE DINING HALL BEYOND.

Arnold W. Brunner, Buchman & Fox, Associated Architects.

segregation to the units of the group. The corridors are provided with roof walks, which are of use in pleasant weather.

The exteriors of the buildings, designed in brick, terra cotta and limestone, are appropriately developed architecturally. The use of band courses and the continuous cornice level of the various buildings bring each into harmony with the other and unify the group. The treatment of the street façades is carried about each unit so that within the quadrangle the effect is as pleasing as without. It is most livable, utilitarian architecture that does not impress the beholder by any striking feature, but surrounds him comfortably with an atmosphere of good proportion and outline and little embellishment of ornamental detail.

C. W. H.

Arnold W. Brunner and Buchman & Fox were associated as the architects of the group. The Hedden Construction Company built the buildings. The brick

was furnished by Fiske & Company, and the cornices, skylights and roofing were done by the Architectural Metal Works. The William H. Jackson Company laid the tile, and cement was supplied by the Knickerbocker Portland Cement Company. The sidewalks were laid by the Schouler Cement Construction Co.

The elevators, of the plunger type, were installed by the Standard Plunger Elevator Company; the Vacuum Engineering Company installed the vacuum cleaner equipment. Loomis-Manning filters were used, and the hot water regulators were installed by the Standard Regulator Company. The panels and switchboard were put in by the Metropolitan Electric Manufacturing Company, Habishaw new code wire being used. Kompolite floors were laid by the General Kompolite Company. The Globe-Wernicke Company, of New York, supplied the furniture for the committee room, including a table 18 feet long and 5 feet wide made in one piece. The light shades of glass were made by the Gleason-Tiebout Glass Co.



THE SYNAGOGUE.



ENTRANCE TO SYNAGOGUE WITH BUST OF SIR MOSES MONTEFIORE.

Title: Wm. H. Jackson Co.
 Evan's "Crescent" Expansion Bolts Used.
 Panels and Switchboard: Metropolitan Electric Mfg. Co.
 Ornamental and Plain Plaster: Davis Brown.



MEMORIAL VESTIBULE AND CORRIDOR. COMMITTEE ROOM.

Arnold W. Brunner, Buchman & Fox, Associated Architects.

Kompolite Floors.
Bommer Spring Hinges.
Grant Overhead Pulleys.
Furniture: The Globe Wernicke Co., N. Y.
Glass Light Shades: Gleason-Tiebout Glass Co.
Habirshaw New Code Wire Used.



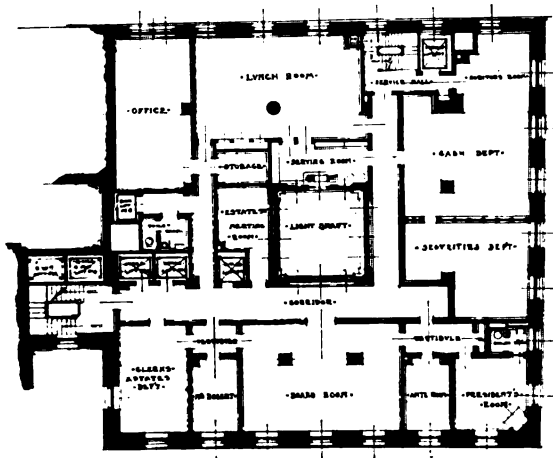
Basement.

Ground Floor.

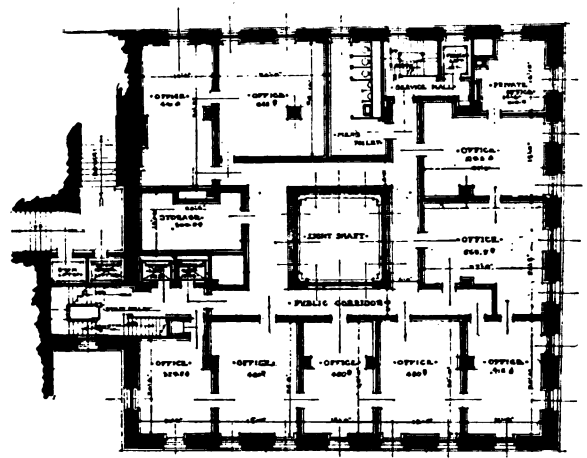
THE ROYAL TRUST COMPANY BUILDING, MONTREAL, CANADA.

General Contractors: Norcross Bros. Co.
 Electrical Contractors: Albin Gustafson Co.
 Elevators and Dumbwaiters: Standard Plunger Elevator Co.

McKim, Mead & White, Architects.
 Electrical Engineer: C. E. Knox.



First Floor.



Fourth Floor.

THE ROYAL TRUST COMPANY BUILDING.

Bronze Work: Estey Bros. Co.
Evans' Patent "Crescent" Expansion Bolts.
Chicago Spring Butts.

McKim, Mead & White, Architects.



THE ROYAL TRUST COMPANY BUILDING.

Directory Board: U. S. Changeable Sign Co.
 Bronze Work: Estey Bros. Co.
 Star Expansion Bolts.
 Elevators: Standard Plunger Elevator Co.

McKim, Mead & White, Architects.
 Electrical Engineer: C. E. Knox.



RESIDENCE OF MR. WILLIAM STARR MILLER, 86TH ST. AND 5TH AVE., NEW YORK.
 Builders: H. H. Oddie, Inc. Carrere & Hastings, Architects.
 Grant Overhead Pulleys.
 Chicago Spring Butts.
 Star Expansion Bolts.
 Otis Elevator
 Dumbwaiter: Chelsea Elevator Co.
 Electrical Contractor: Dennis G. Brussel.

PROGRESSIVE ARCHITECTURAL CONSTRUCTION

By FREDERICK SQUIRES

PLATE I:

This first plate illustrates an architectural use of concrete in a doorway of a little library at Oakland, Pa., and is shown as part of the whole building and by itself in these photographs, while its construction is elaborated on the large detail



CAST IN CONCRETE.

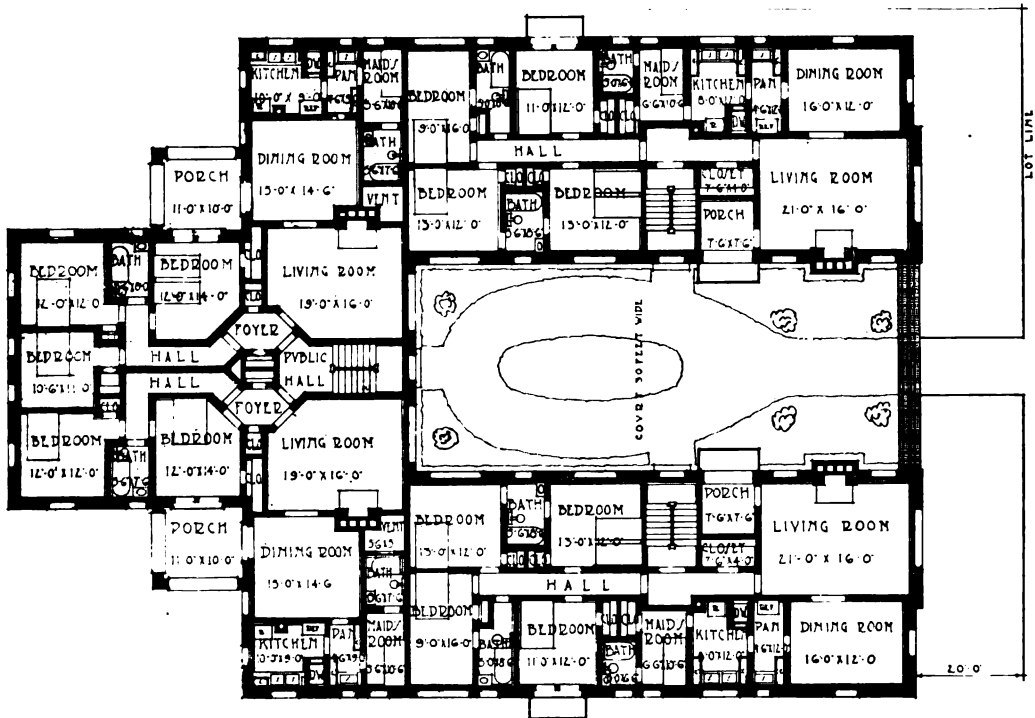
sheet. The reason why it is worthy of attention is because it is a serious attempt to apply the refinement of architecture to a comparatively new material. The fact that it cost only a third of what the same work would have cost in stone is not material to this discussion, although the reverse would have made the discussion impossible. Here is a material, which a while ago an eminent English architect claimed to be out of the pale of possible

artistic treatment, successfully treated in a most architectural manner. How was it done?

The scale drawings were full sized and sent to the concrete man. From the profiles shown on the full size drawings templates of zinc were made and the mouldings run in plaster. Then a plaster cast of the whole doorway except the modeled tympanum was made and clay ornament applied to the cast by the sculptor. The next process was the plaster backing for the gelatine mould. Over the whole doorway a coat of clay was laid, and over it a plaster shell was cast, which was removed when hard, the clay scraped off and the plaster forms reunited, there being left between them the void where once the clay had been. Into this void liquid gelatine was poured and left to take its tough elastic set. This having been accomplished, the gelatine was placed in its outer plaster reinforcement and was ready for concreting. The similarity in result and the difference in labor between pouring a liquid mass of sand and cement into this gelatine mould and carving the same intricate form out of solid rock is the measure of this advance; and the result of the modern method need not disturb Vignola in his honored grave. It will rather perpetuate his teachings by the greater readiness wherewith they may be followed in enduring images. By such a method the column loses all its terrors for the pocketbook, and frequent repetitions of similar columns and architraves are encouraged by the economy with which they can be made. It is obvious that by the introduction of reinforcement such an order would have real structural value and would partake in the usefulness which had so characterized concrete.

It is one of the aims of the progressive in architectural construction to link the beauty of classic forms to the obvious usefulness of concrete.

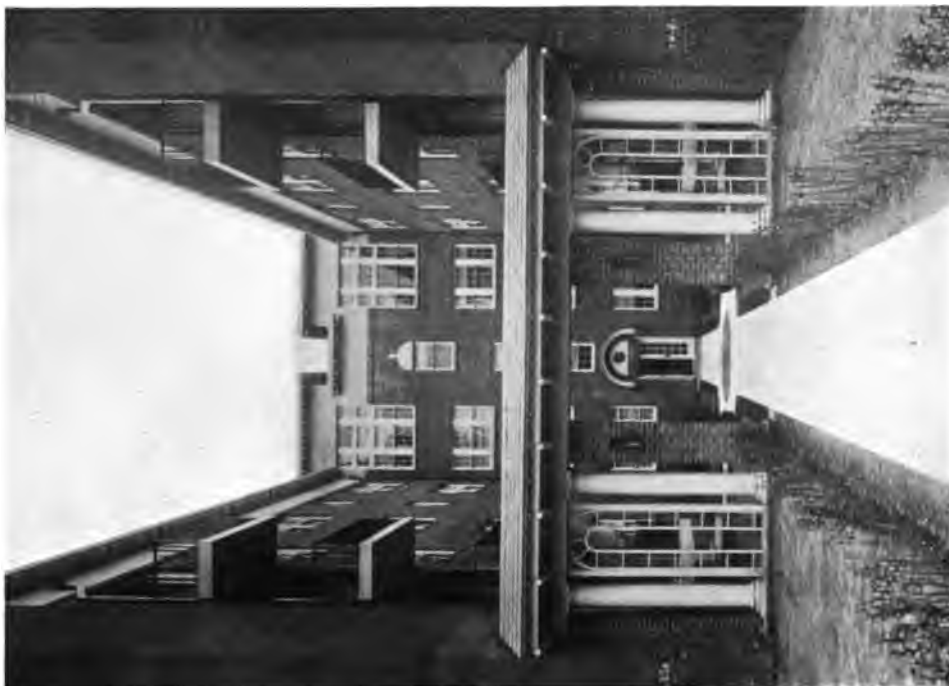
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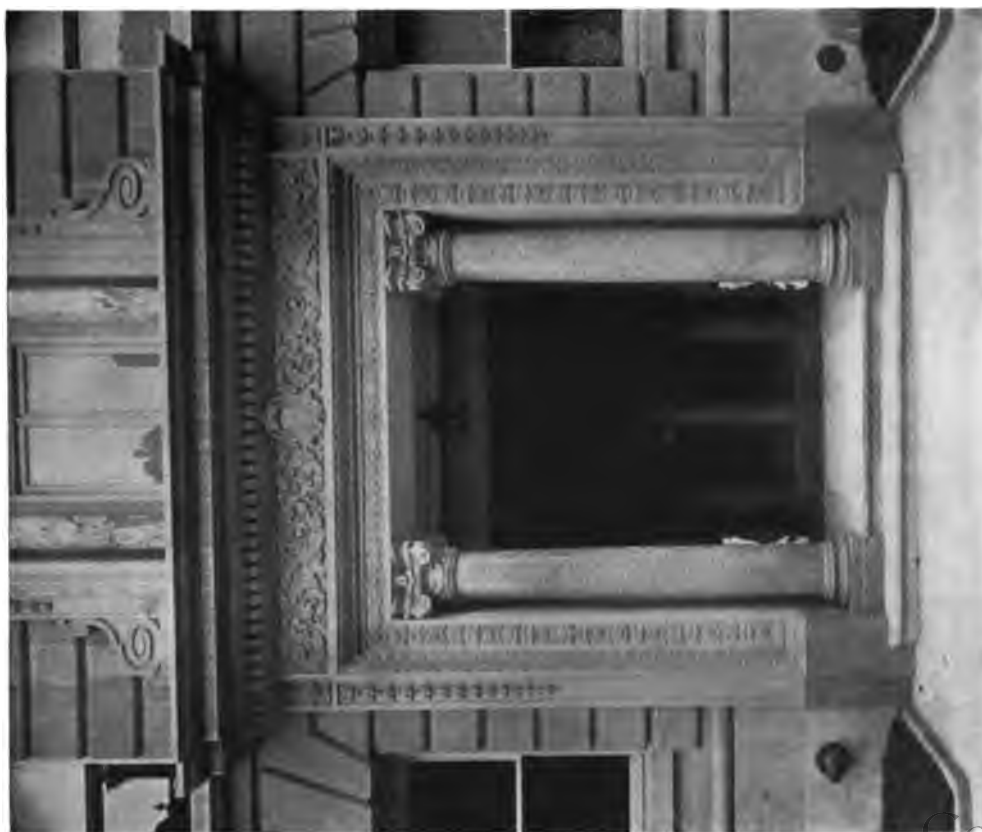
THE PONFIELD APARTMENTS, 163D ST. AND PONFIELD ROAD, NEW YORK.

Builders: J. L. Ward Co.
Fireproofing: Barzaghi-Vought Co.
Stanley Butts Used.

Harry Leslie Walker, Architect.



ENTRANCE TO THE PONFIELD APARTMENTS.
Harry Leslie Walker, Architect.



DOORWAY OF 640 WEST END AVENUE.
Townsend, Steinle & Haskell, Architects.



APARTMENT HOUSE AT 640 WEST END AVENUE, NEW YORK.

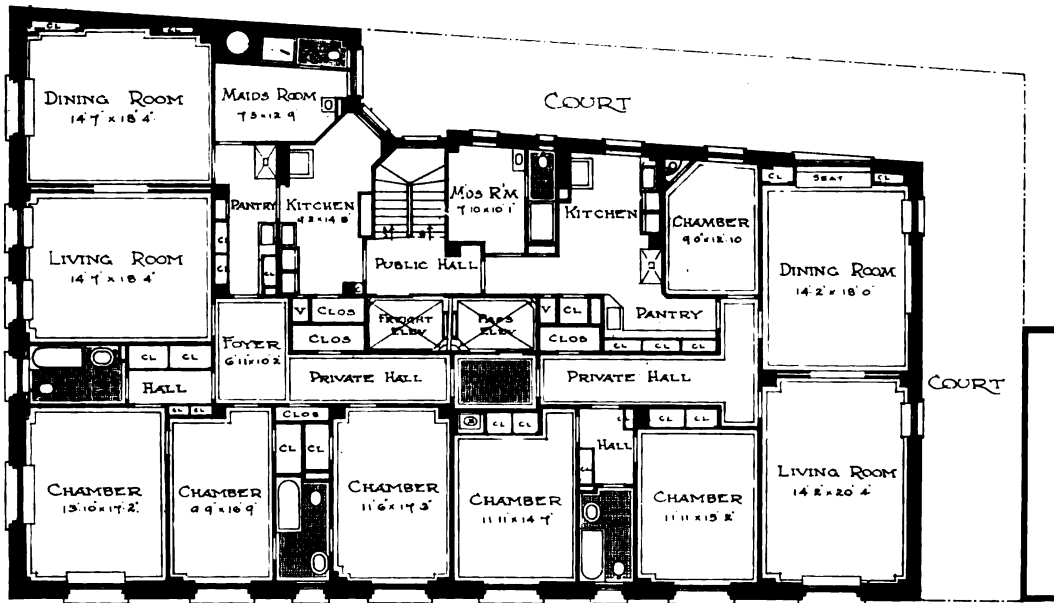
Marbleloid Floors in Service Departments.

A. B. See Electric Elevators.

Bronze Balcony Grills: Penn Brass & Bronze Works.

Loomis-Manning Filters.

Townsend, Steinle & Haskell, Architects.



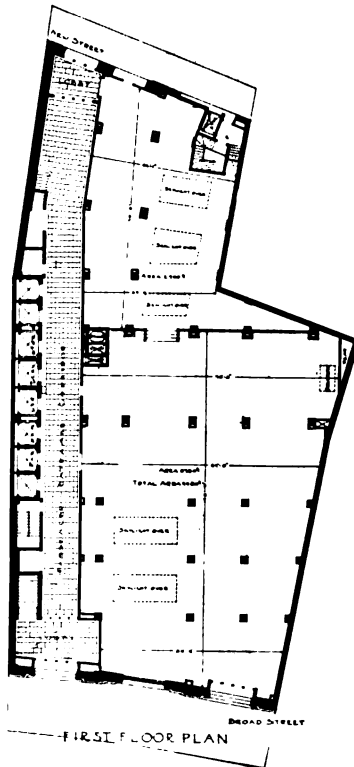
APARTMENT HOUSE AT 640 WEST END AVENUE.

Decoration and Hangings: John H. Hutaft.
 Bommer Spring Hinges.
 Tettenborn Refrigerators.
 Corbin Hardware.
 Stanley Regular Hinges.
 A. B. See Electric Elevators.

Townsend, Steinle & Haskell, Architects.



Typical story plan above 9th floor.



THE 50 BROAD STREET BUILDING, NEW YORK.

Terra-Cotta: New York Architectural Terra-Cotta Co. Willauer, Shape & Bready, Architects.
 Otis Elevators.
 Barrett Roofing Materials.
 Panels and Switchboards: Metropolitan Electric Mfg. Co.
 Heating and Ventilating: W. L. Fleischer & Co., Inc.



THE HALL IN 50 BROAD STREET.
 Interior Marble: D. H. McLaury Marble Co. Willauer, Shape & Bready, Architects.
 Glass Light Shades: Gleason-Tiebout Glass Co.
 Diamond Door Hangers.
 Bommer Spring Hinges.
 Stanley Regular Hinges.



THE HALL IN THE KINNEY BUILDING. Cass Gilbert, Architect.
 Ornamental Plaster: T. A. O'Rourke, Inc.
 Clock System: The Magneta Co., Inc.
 Diamond Door Hangers.
 Star Expansion Bolts.
 Painting and Decorating: Charles Stopper.
 Metropolitan Push Button Switches.



THE KINNEY BUILDING, BROAD AND MARKET STREETS, NEWARK, N. J.

Builders: Hedden Construction Co.
 Court Terra-Cotta: New York Architectural Terra-Cotta Co.
 Evans' Patent "Crescent" Expansion Bolts.
 Metal Windows: The Leonard Sheet Metal Works.
 Tile Fireproofing: Raritan River Clay Co.
 Switchboard Grille: Wm. O. Chapman Co., Inc.
 Hot Water and Damper Regulation: Standard Regulator Co.
 Metal Doors and Trim: U. S. Metal Products Co.

Cass Gilbert, Architect.



LOUNGE, RESTAURANT AND GRILL ROOM IN THE DOWNTOWN CLUB. THE KINNEY BUILDING, NEWARK, N. J.

Painting and Decorating: Charles Stopper.

Leaded Glass: Spiers-Lederle Glass Co.

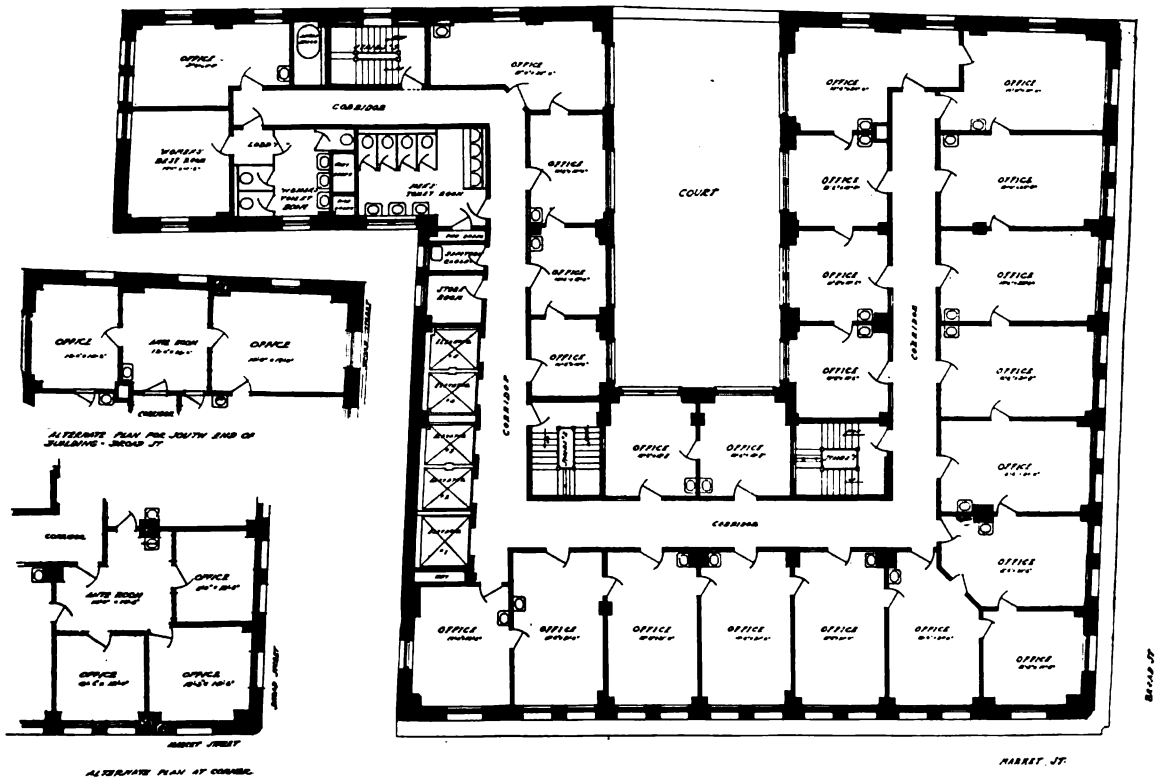
Grill Room Chairs: The Marble and Shattuck Chair Co.

Lighting Fixtures: The Browe Co.

Cass Gilbert, Architect.



THE DOWNTOWN CLUB LIBRARY.



TYPICAL FLOOR PLAN OF THE KINNEY BUILDING, NEWARK, N. J.

Builders: Hedden Construction Co.
Floors: The Marbleoid Co.
Lighting Fixtures: The Browe Co.

Cass Gilbert, Architect.



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**PERSPECTIVE OF THE NEW EQUITABLE OFFICE BUILDING, BROADWAY, NASSAU, PINE
AND CEDAR STREETS, NEW YORK.**

Builders: Thompson-Starrett Co. Otis Elevators. E. R. Graham, Architect.
Architectural Terra-Cotta: Federal Terra-Cotta Co.
Henry C. Meyer, Jr., Consulting Engineer for Equitable Life Assurance Society.

Department of Fireproofing and Fire-Prevention

Conducted By G. H. STEWART

Building Increase.

According to reports from seventy cities as presented by the American Contractor, building permits for the month of December reached a total valuation of \$57,266,319. This is much better than the showing for November. There has been a large gain in the percentage of permits issued in Buffalo, Cedar Rapids, New Haven and Wichita, caused by the commencement of work upon public buildings, schools, etc. Nearly half of the list of cities show gains. As compared with the month of December, 1912, a loss of about 5 per cent. is shown, which is not much more than normal fluctuation. If this be taken as an indication of improvement, we may hope to see better conditions prevailing in the building industries during 1914 than those of the present year.

According to returns from sixty-nine cities for the entire years of 1913, building permits to the value of \$722,378,100 have been issued. This is 16 per cent. less than for the year 1912 when the total permits amounted to \$862,209,348.

It is encouraging to note that among the list of cities showing an increase Chicago, Cincinnati, Columbus, Detroit, Grand Rapids, Indianapolis, New York in the Boroughs of Manhattan and Brooklyn, Pittsburgh, Rochester, San Francisco, St. Paul, Topeka and Worcester show a noticeable percentage of increase over the same month in 1912.

The Fire Department Autos.

One of the first official acts of Fire Commissioner Adamson, and one that is likely to place him high in the estimation of every thoughtful citizen, was to issue orders curbing the reckless driving of department automobiles. This order does not apply to the fire fighting apparatus nor to the machines in use by the uniformed force when en route to fires or engaged in the business of fighting fires, but to the motor cars in use in the different bureaus. One can only wonder why this extremely common-sense rule has not been put into effect before. There never was and probably never will be any need for such reckless haste on the part of these various officials; indeed most of the speeding cars have not been employed on official business.

This speeding of department automobiles is a habit which is prevalent in other cities than New York, and the sooner regulations similar to those cited above are put into effect, the more popular the various commissioners will find themselves, among the citizens of the

cities at least. It is almost invariably the case that the offending car is one attached to the department for the use of officials, not the fire fighting apparatus. The users of these cars seem to have assumed that because they had never been forbidden, they might take advantage at all times and on all occasions of the rule exempting fire department machines from the usual traffic regulations, thereby uselessly imperilling other vehicles on the streets as well as pedestrians. This abuse of privilege has now exhausted even the very great patience of the average citizen.

Protection Engineering.

The publishers of this new periodical, which appears with its first number January, 1914, state that it is a practical magazine of fire prevention, fire protection and allied subjects, with which is consolidated the Fire Protection Supplement of the Insurance Field. Its office of publication is Louisville, Ky.

Not the least interesting fact about "Protection Engineering" is its editorship by Mr. A. Irving Brewster. Mr. Brewster is well known as a student and authority on statistics of fireproofing materials, fire prevention methods and the entire details of the subject. Judging from the contents of the first issue, the paper is to be directed along highly technical lines, and the facts published will be of value to the trade as well as to all those interested in fire waste and insurance problems.

Shingle Roof Fires.

Recently Fire Marshal W. E. Longley of Indiana issued a bulletin dealing with the danger caused in his state by shingle roof fires.

"One of the greatest sources of fire in Indiana cities is the shingle roof. Shingles not only act as tinder to be kindled by sparks from locomotives and chimneys, but when ablaze they easily fly through the air and fire adjoining roofs.

"Figures on spark fires throughout the state for the period May 15 to September 27 bear out the fire marshal's statement, for during that time there was a total of 567 fires caused from sparks falling on shingle roofs. The loss resulting from these spark fires reached \$657,179.

"Fires on roofs usually start from two sources: flying sparks from locomotives or nearby smokestacks, and from the chimney of the roof itself. According to the fire marshal's figures, 186 fires were caused in Indiana from May 15 to September 27 by sparks from loco-

motives. The loss was \$556,555. During the same period there were 381 fires caused by sparks from chimneys, with a loss of \$118,624.

"Additional estimates given out by the state fire marshal's office state that sparks from flues caused approximately 20 per cent. of all Indiana residence fires during the past summer. Sparks from locomotives were responsible for 4.2 per cent.

"In an effort to relieve the danger from shingle roofs, many of the cities of the United States have adopted a noncombustible roofing which they are requiring property owners in certain districts to use. Asbestos shingles or some compound roofing material is being recommended to relieve the hazard of shingles."

The Chelsea fire in Boston, a number of years ago, was one of the most disastrous conflagrations of recent times, and was almost entirely a shingle roof fire. After the first alarm there were a dozen others from widely scattered points within ten minutes, and then the alarms became so frequent that a record could not be kept. The Bangor, Me., fire was a similar case, and so was that in Houston, Tex.

A talk with the fire chief of almost any of our towns will reveal the fact that with almost every blaze there are numerous smaller fires to be put out, caused by brands falling on the shingle roofs and this is a usual and continuous cause for watchfulness on the part of the fire departments.

While we cannot hope to see shingle roof construction legislated out of existence all at once, there is a most encouraging tendency on the part of municipal authorities to check



The Morning after the Fire that Destroyed the Old Building of the Equitable Life Assurance Society, January 9, 1912.

the peril by regulations where shingle roofs are largely in use and to provide that in the rebuilding of old roofs and in the roofing of new structures, materials of non-combustible surface shall be employed. An interesting comment on this subject appeared in the last issue of "Fire Protection."

BUILDING FOR THE NEW YORK TRANSPORTATION COMPANY.

This building, utilized primarily as a garage, is located at 10 East 102d Street, and covers a ground area of 100 by 250 feet, consisting of three stories with a basement under a small portion. The construction is steel skeleton with 12-inch brick walls and stone trimming. The floors are of 4-inch reinforced concrete bays with 1-inch cement finish. The roof is of similar construction with a ruberoid surfacing. All columns are protected with 4 inches of brick work and girders with concrete. The stairs are iron framed and the wells are enclosed with 8-inch brick walls with vestibule approaches shut off from the floors by 2-ply tin clad labeled automatic fire doors at all openings.

There are two A. B. See electric elevators, one a combination passenger and freight car, and the other an automobile lift of 15,000 pounds capacity with double openings to each floor. All openings from the elevators are protected by Peele automatic counterbalanced fire doors.

On a mezzanine between the second and third floors are located the offices of the



The Site Cleared and Ready for the New Building.



BUILDING FOR THE NEW YORK TRANSPORTATION COMPANY AT 10 EAST 102D STREET, NEW YORK.

Ruberoïd Roofing.
A. B. See Electric Elevators.
Switchboard: Metropolitan Electric Mfg. Co.
Peelle Automatic Elevator Doors

James C. McGuire & Co., Architects.

New York Transportation Company which are segregated from the automobile storage area by tile partitions and provided with kalamain doors and trim. Metal lockers are supplied for the use of the employees. On the top floor there is a room especially built for the storage of paints, oils, etc.

For fire protection the building is equipped with an automatic sprinkler system provided with 1,025 type B Esty heads. The system is supplied by an 8-inch pipe from three 7,500 gallon pressure tanks and one 25,000 gallon gravity tank. There are two 6-inch alarm valves and two siamese fire department connections at the street. There is no alarm service, but night and day watchmen's service is provided.

The drainage and soil lines for the building are run in two separate systems. All soil lines from basins, toilet fixtures, roof leaders, etc., run directly to the main sewer connection in the basement. All drainage from the washing floors which is apt to contain oil and gasoline is carried down separate lines and drains into a settling tank and oil separator from which the water passes into the main sewer.

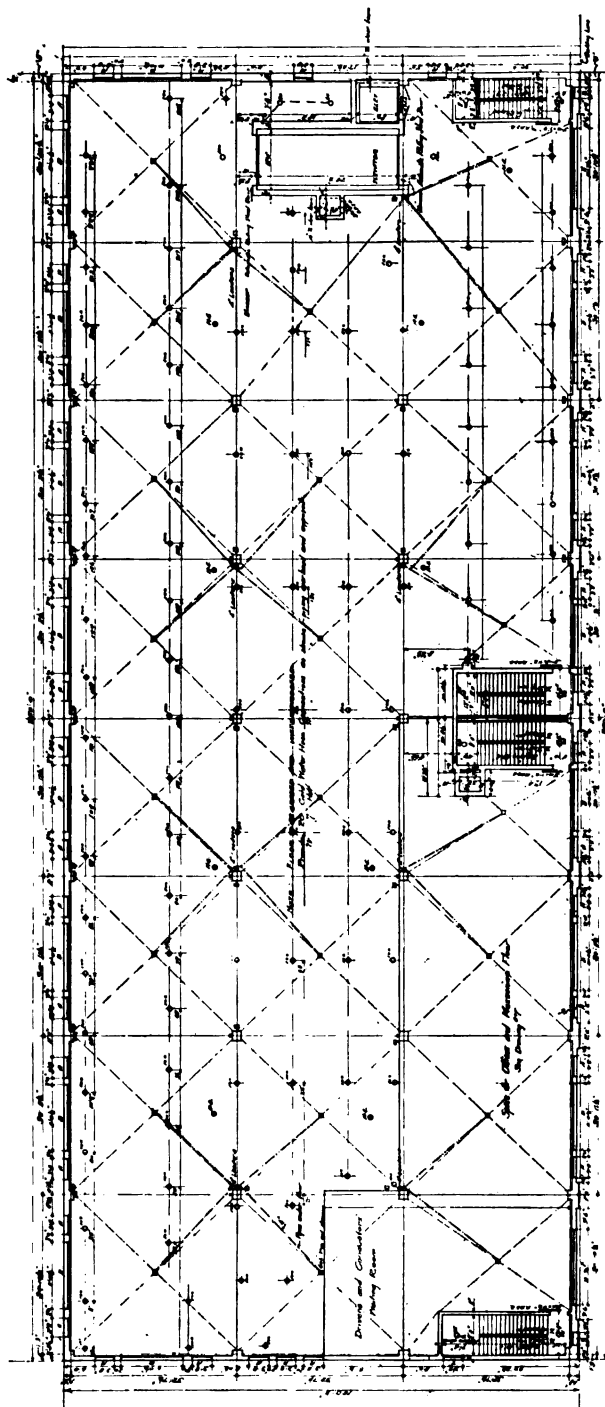
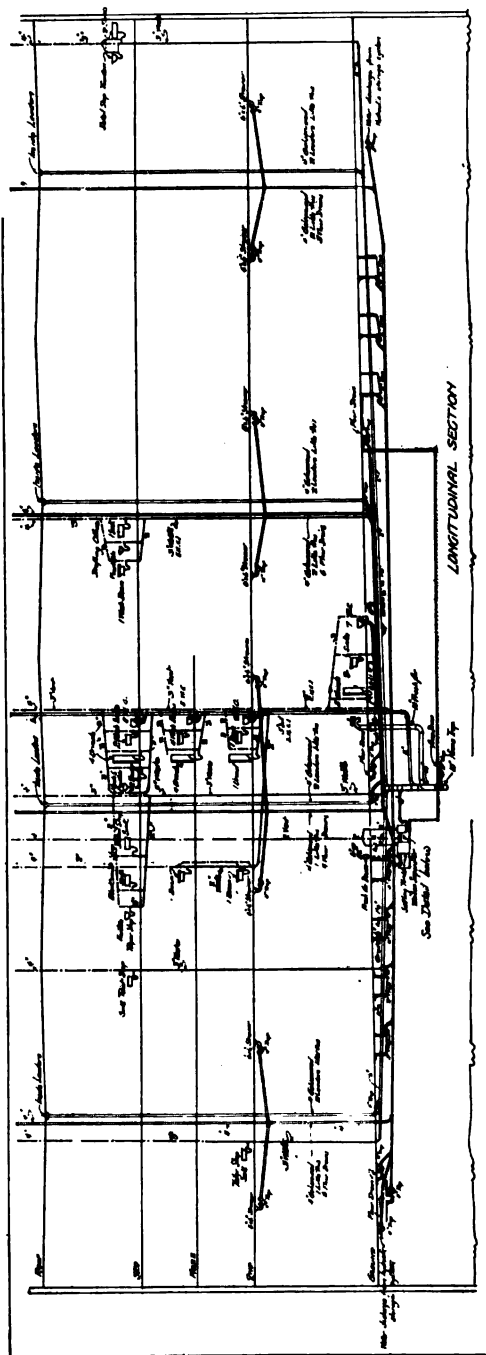
One of the greatest aids to safety and economy in the operation of the garage is the system of storing gasoline and distributing it into the car tanks. The method of checking the gasoline is the latest device of the Hydraulic Oil Storage Company, who installed the equipment. The result is obtained by means of meters which measure the gasoline as it goes into the storage tanks and again when it is

delivered directly from them into the car tanks. These meters have the stamp of approval of the Bureau of Weights and Measures on them which is an assurance of their accuracy. The drawoff meters are of the predetermined auto-stop type which may be set for any desired amount and will automatically shut off the supply when this amount of gasoline has passed through them. They also register the total amount which has been drawn in any period of time, which makes the system work like a cash register.

The storage tanks have a total capacity of 6,000 gallons and are located under the building. The first floor is equipped with four drawoff points, two being placed at each entrance. The system is also so extended that gasoline can be drawn on the second and third floors.

The tank is designed without a vent. This prevents evaporation and there can be no loss of gasoline no matter how long it is kept in storage. The gasoline is stored under a water seal. No pumps are used and as the cars are filled directly from the system there is no need of portable tank wagons or safety cans. All labor in connection with the filling of cars is thus eliminated, gasoline being drawn directly from the top of the tank as easily as water from a faucet. No water or dirt can be drawn.

The system consists of storage tanks and necessary parts and connections to the water supply and to the drain. The arrangement is such that when water is allowed to enter the



NEW YORK TRANSPORTATION COMPANY. ELEVATION SHOWING DRAINAGE SYSTEM. SECOND STORY PLAN.
James C. McGuire & Co., Architects.

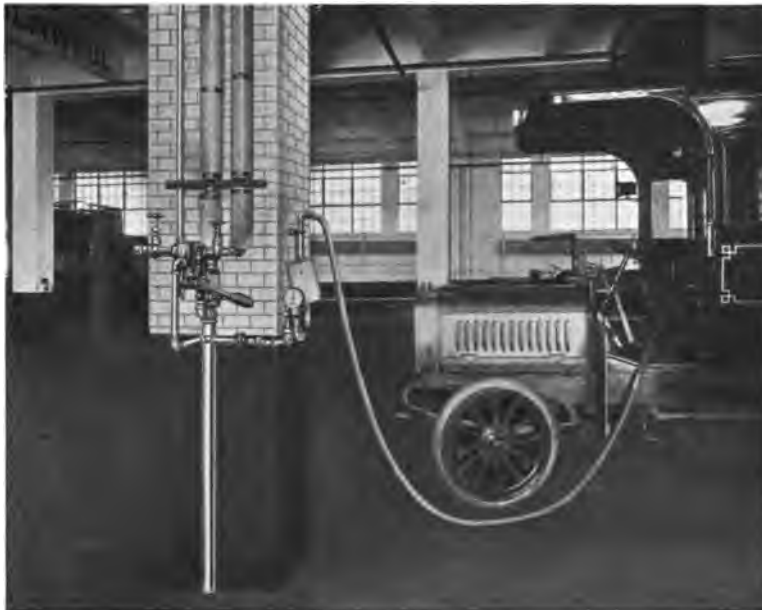


THE TOP FLOOR, SHOWING SPRINKLER EQUIPMENT AND TRAVELING CHAIN HOIST EQUIPMENT.

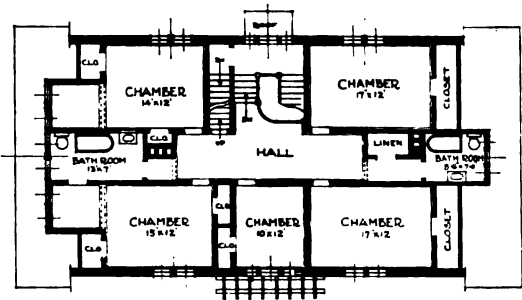
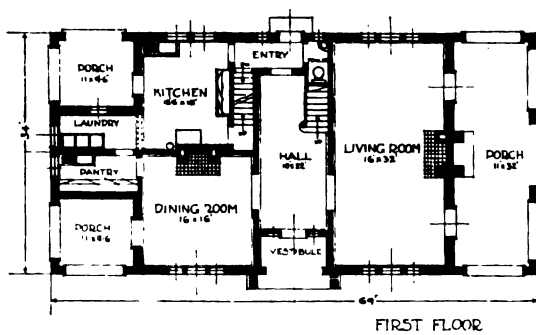
bottom of the storage tank clean gasoline is floated out of the top to the drawoff point. The water and gasoline do not mix. When filling the storage tanks, gasoline is let into the top of the tank and water is forced out of the bottom of the water seal, running out through the operating valve to the drain. As there is no air in the tanks no explosive mixture can be formed with the gasoline vapors, and there-

fore it is impossible to explode them by fire, lightning or electricity.

In addition to the gasoline storage, there are two 500 gallon tanks provided for oil storage and one for kerosene. Mr. Percy Roche, of James C. McGuire and Company, the architects, was the chief superintendent, and Mr. Francis Seaman was the superintendent on the work for the architects.



ONE OF THE DRAW-OFF METERS IN USE SUPPLYING AN AUTOMOBILE WITH GASOLINE
Oil Storage System: Hydraulic Oil Storage & Engineering Co.



A SUBURBAN RESIDENCE NEAR PHILADELPHIA.

C. E. Schermerhorn, Architect.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

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AS I was saying several months ago when I told about the handsome merchant who traveled through the western border country in a highly decorated peddler's wagon, this writing has an object. I want to say here by way of correction that when he threw the skein of ribbon over the crowd the bearded stranger said, "I want the *attention* of about four thousand." I left out the word *attention* in my account of the important event.

What I am after is to get the attention of a whole lot of people, and they ought to be young people—people with their careers before them instead of behind.

There is a story, most of which I unfortunately have forgotten, of a remark made by a member of the Colonial Congress at one of their meetings in Philadelphia. Those great old boys were not unaware of the danger of their position, and they chaffed one another about it. There was a picture on the wall of their meeting room which showed the sun near the horizon. The sight of it suggested to one of the members to make a facetious remark about whether the sun in the picture was setting or rising. Fortunately, they could take their choice, and it was the sentiment of the meeting that the sun was rising—upon the Continental Congress and free America. And so it has come to pass.

The future of architecture and building is in the hands of the rising generation. Those who have arrived have made their fortunes and their reputations, and they are doubtless satisfied with things as they are. I have in mind one of them, an architect of credit and renown, who graduated from a trade—we will say he had been a carpenter. He was young, ambitious, and he could see through a hole in a ladder. He began as superintendent for a big architect, one who was well established. He soon won a partnership, for his employer was old and lazy.

It was twenty years ago and business was just emerging from a panic. The men who held the money were the ones who loved it most; they had fought hardest for it and clung tightest to it. They let it go grudgingly. This young architect made a great play with these men of money that he could get their buildings done cheaply. He could, and he did.

Knowing contractors, almost all of whom are ex-mechanics, our young architect, who had been a mechanic himself not so long before, knew the contractors' nature, and he was able to work that dear old gag so familiar to those who know the inside of the business. When the bids were in he would never think of sending for the lowest bidder. No. He would let the bidders alone for two or three days while they wondered what was up. Then, prompted by perfectly legitimate curiosity, they would come around and ask how they stood. Now, there were several ways of handling a contractor in this state of mind; one was to tell him that he was away too high.

As bidding on work is after all nothing more nor less than guess work, it was easy enough to shake the contractor's confidence in himself, especially as the architect had not so long before been in the contracting line and presumably knew a whole lot about it. He would go over the contractor's estimate and show him his mistakes. This price or that price might be shaved ten or fifteen per cent.; this item and that item could be eliminated by good management. Almost invariably the estimate could be very materially reduced. That was one way of bringing down the price.

Another way was to ignore the low bid and to send for some likely looking individual, some ambitious young contractor, particularly some man that had a little money to lose—a lot of money would be better still. This victim was sent for and told by the architect that he knew him, had seen his fine work and had seen evidences of his wonderful mental powers and high executive ability and future greatness. The contractor would be flattered to the top of his bent and then told that the architect wanted to employ him, that the owner knew him and liked him—but, unfortunately, his figure was twenty or twenty-five or thirty per cent. out of the way. Almost always this architect brought down his man. If occasionally he found some fellow that was a little bit hard-headed, he would drop him and send for another. There was always somebody to be blandished into taking the job at figures so low that it was a foregone conclusion that he would lose his roll on it.

A great deal of this architect's work was piecemealed out, and he would go through a list of what in New York are called sub-contractors and "take up a collection" of thousands and thousands of dollars, all for the owner's benefit. So successful was this man in saving money for owners that he built up an enormous business, gradually extending to distant cities.

This architect has now retired, full of ill-gotten gains. Whether he has a conscience that sometimes pricks him as he thinks of the money that he was instrumental in transferring from the pockets of contractors to the pockets of his wealthy clients I do not know. As I said he has retired, and it is up to all those interested to consider whether the future of architecture and building lies in supporting and feeding others like him.

And now for a story of the dawn, a story of hope for architecture and building. We have just come through, or are coming through, another period of hard times and the money is again largely taken from weak hands and held by strong ones. Human nature is the same as it always was, and the strong can make themselves stronger by taking advantage of it. But here is the story, literally true, as was the other one.

A young architect, fairly well equipped for his business, with a knowledge not only of architectural anatomy but of building costs, was employed by an owner to do a certain piece of repair work. The architect studied the problem and made his design and got his estimates. The lowest was very low; the next figure was almost three times as great, and from that up. It looked as if the low bidder had made a mistake. Our young architect made his own estimate and came to the conclusion that the low figure was a reasonable one and that the contractor could do the work for that sum and make a profit if he had the assistance and co-operation of the architect. The facts were laid before the owner, who, thank God, was of a different breed from those who fattened our first friend. He did not want to rob the contractor. He was a little bit skeptical as to his ability to do the work for the amount of his estimate, but he was willing that it should be tried. To make a long story short, they worked together; the architect spent almost his entire time supervising and directing the contractor. The work was done promptly and the contractor made a profit. Now the architect has all the business of that owner, running into millions per annum.

This story is just as true as the other one, but which of these two ways of doing business do you consider the more desirable?

If you, gentle reader, knew all that I do about those two men and the circumstances, you would take heart. If you are an architect, you should be glad to know of a great success based on merit and square dealing. If you are a builder, you should be glad to know that there are men of money who are willing to let somebody else make a dollar. If you are neither an architect nor a builder, but merely a plain, ordinary citizen, perhaps you are interested in this account of two ways of doing business and glad that the story of co-operation is the more modern one. Perhaps you feel as I do and regret that the ex-mechanic was allowed to pursue his career for twenty years, strewing his path, metaphorically speaking, with wrecks of contractors' fortunes. I understand he is wealthy and enjoys his well-earned ease.

Theodore Starrett.

ARCHITECT-TONICS



N altar is the theme of this story. As everybody knows, in any town there is no building so sacred as the church; in the church no place so holy as the chancel, and its altar is the focus of the faith. Seriously, then, the architect designs it. Never shall I forget the altar of Saint Jude!

The Church in America is the offspring of the Church of England and sometimes the American branch worships its parent stem in many ways, some having nothing to do with religion, and so it was in this parish. Father Stone took his orders from his vestry, which was headed by a fine old senior warden who lived seven Sundays every week and hit sturdy blows with either hand on six of them. Many opportunities were offered him for muscular Christianity, because he was mayor of the town besides. It was to his

good sense that I appealed whenever things were going wrong with the new building.

Having stood off the vestry and utterly routed its reinforcements, Father Stone, by overthrowing a consuming desire for a clapboard monument, I had designed a simple Gothic edifice of brick which recalled the English ancestry of the Church, while curbing the Anglo-mania of certain members of the parish. So far, so good. We had seen the enemy and he was ours, and no unworthy foe is a church vestry, as any architect will tell you.



Now enters Mrs. Story. It is not to disparage her that this little tale is written, but rather to tell you some of the serious and humorous things which complicate the work of architects.

She was an Anglo-maniac and gladly skipped a generation all too prone to the commonplace, to date and locate everything from a churchly grandfather, the Right Reverend John Dean, a Bishop of England. The intervening Deans and Storys had strayed far from the straight and narrow path of the Right Reverend and while so straying had amassed much of this world's goods and not a little of its worldliness. With the new church altarless came at a blow the opportunity for Mrs. Story to publish permanently her ancestral godliness and present wealthiness by providing the altar as a commemoration of the Bishop.

In spite of many misgivings on the part of its Senior Warden, her offer was accepted by the vestry and the work begun. The name of the donor was to be withheld until its unveiling. Mrs. Story had many conferences with me, and, although easy to please in design through entire indifference to it, she was more difficult to deal with in the matter of inscription. Her desire was that the altar should be of impressive size, and that this inscription should be large and legible:

"Erected to the Glory of God and in Commemoration of the
Right Reverend John Dean by his Grand-daughter
Julia Dean Story."

When the work was well advanced came a sudden interruption. The telephone rang and Mrs. Story's voice was heard, "Stop the



work; I will be in to see you right away!" Soon appeared a very angry Mrs. Story. I found from her excited outburst that she drew a part of her large income from the secret ownership of an extremely profitable hotel, whose methods were often irregular, on account of which the mayor had just taken away its license. Mrs. Story took the mayor's action as a personal affront, overlooking the fact that he

could not have known her secret ownership of the hotel, and her method of retaliating was unfairly feline. In so many words, she would not give the altar if deprived of her profits from the license. She would not pay even for the work already done unless somebody made good in the hotel matter. She relied on the probability that the vestry would convince its warden mayor that it was wiser to come to terms with her than to precipitate a scandal. "No license, no altar," was her ultimatum.

She commanded the situation. She was worth more than all the vestry put together and the altar was going to cost a lot of money. Since the vestry had given the order and there was no contract to connect her with the transaction, if she backed out the vestry would have to foot the bill. The matter of the license was at best largely a question of policy. Many a license has been held up on similar provocation, only to teach good behavior and then reissued when the lesson had sunk in. In the case in point, the raid had been a secret one, and if the license was reissued nobody would be the wiser, for Mrs. Story had communicated her ultimatum to no one but the vestry and its architect. The reissuing of the license seemed abundantly justified by precedent and the scandal which it would avert. A delicate matter surely, but one in which the senior warden would use his well-known judgment, the judgment that put him at the head of his business, town and church. There is a time for a fighter to hit out, but there is also a time to put up only a protecting arm to guard. To his credit be it said, that, nasty as the situation seemed, we counted surely on our senior warden to work out a happy issue.

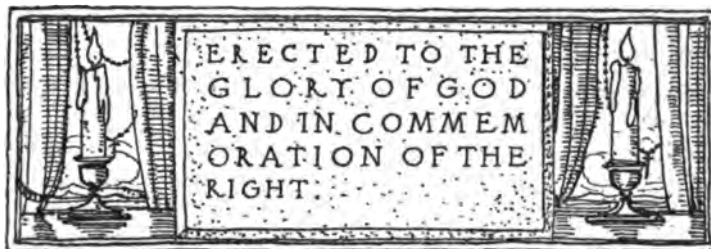
The next day he came to my office. His manner was preoccupied and his cares sat heavy on him. He told me that he hadn't yet de-

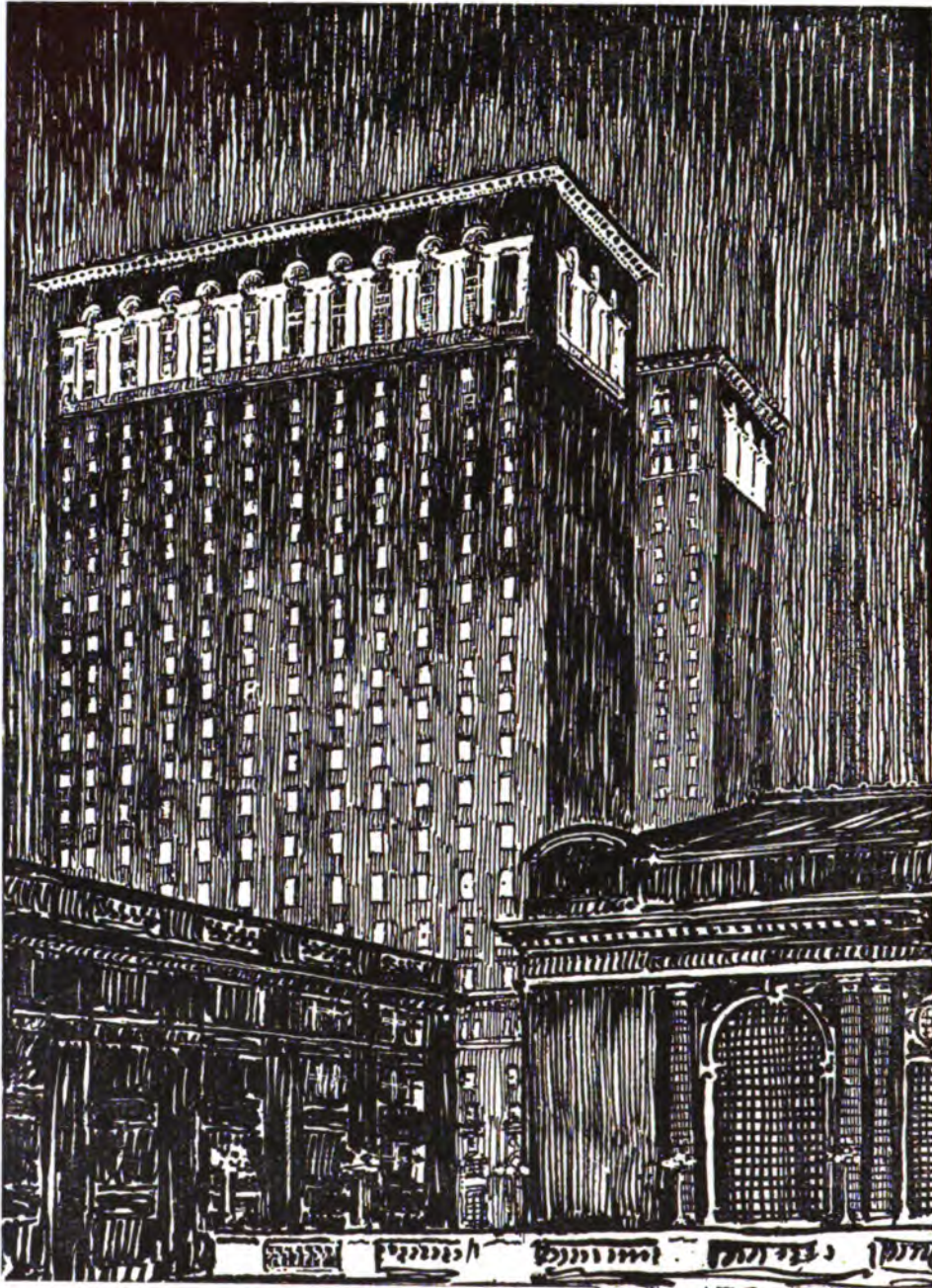
cided the matter but since he must be its final arbiter he alone would pay the price of an adverse decision. The good name of the church was very dear to him, but the cost of the altar would be a heavy burden. Had he not been too hasty in the hotel matter even without regard to its entangling ownership? Yes, the decision surely was disturbing, and just to gain a little time he asked to go with me to look at the altar. Together we walked to the stone-cutter's to see how far the work had gone and found that they had been carving the inscription and had stopped with it half finished.

"Look at the words," he shouted, all indecision quite departed. "The case is settled by a Higher Court."

* * * *

If you go to Saint Jukes you will see a goodly altar with these words carved on it:





THE BILTMORE, FROM PARK AVENUE BY NIGHT.

THE BILTMORE HOTEL BUILDING

By THEODORE STARRETT

NOT very long ago I read in a newspaper an account of a certain great piece of construction. I don't remember whether it was the Panama Canal or the Ashokan Reservoir. The name of the party who wrote it was not given, but I do remember that I put him down as an architectural critic in good standing because he spoke of the construction paraphernalia as being unsightly and unnatural in appearance.

I, for one, never could see it that way. I remember the first view I had of the works at Ashokan, approaching them from the south. It was after the dam was finished, or nearly so. I descried the great structure one afternoon from a distance of several miles. All I could see at first were the construction towers at either end and the smoke of what real writers like Rudyard Kipling call the donkey engines. A nearer approach disclosed the great dark mass of the dam with its level top defacing—no, not defacing the scene—humanizing the scene. Nearer still, and one saw the little people at work upon it and showing the scale of it, its bigness and grandeur. Both the work itself and the tools used in making it seemed to me to be beautiful, beautiful in that truest sense, beautiful because they were so effective.

As all the wiseacres say when they are interviewed by the newspapers nowadays, these are wonderful times (whatever they may mean). And so they are, and the statement that everything that is good is beautiful may not sound so platitudinous to-day as it used to. If everything that is good is beautiful, the perception of beauty comes after the perception of goodness. Many things that are thought beautiful are not good, and when the discovery is made that they are not good the people wonder why they ever thought them beautiful.

Architecture can be well compared to the art of dressing the female form. I do not compare it to tailoring and the dressing of the male form because, while there is some variation and some fashion in the male department, it is as naught in these days compared to the female department. Lots of people who ought to be reading

this and gaining useful knowledge thereby can remember the days of bustles worn by the females of our species. I remember the time well. And I remember too the time I saw a lady on the stage—an actress of taste and beauty—without one. On my word, she seemed as straight as a board from the back of her head to the heels of her feet. What a surprise! I am hardly over it to this day.

Others who might read this with profit can remember the days of enormous wigs, false fronts or "rats" worn by the girls. That was only yesterday.

Well, architecture in America is now passing out of the bustle and false front stage. I refer to "Systematic" architecture as practised by "Systematic" architects, the kind that do the fashionable jobs for the fashionable people.

Such architecture has heretofore been esoteric, that is, only for the initiated. It has been for anybody to buy and own that had the price, though an understanding of the stuff never went with it. The initiated are the only ones that have understood it or been in a position to appreciate it, God bless us! And they make me think of Elbert Hubbard's remark about knowing so many things that are not so. What ridiculous crimes of taste this esotericism of architecture has had to answer for are indicated by the ill-concealed confusion that otherwise cultivated people show in the presence of "Architecture." They don't know what to say about it. It may have been designed by some member of the famous Mutual Admiration Society and be classed by their authorized critics as among the masterpieces of all time. It may be not. If it shows signs of having a lot of money spent on it the onlooker draws the natural conclusion that some fashionable architect designed it, and, being fashionable, he belonged to the Society and it must be all right.

Soon this state of affairs will be gone, for things are changing with astonishing rapidity these days. Soon the architect who daubs the exterior of his building over with bumps and ridges and all kinds of external excrescences, who pads out

the walls to make pavilions or other architectural features, and who builds false fronts up at the roof in the shape of gables, towers, etc., will be laughed out of business. The people are getting wise to him. That critic who wrote about the unsightly appearance of derricks and other construction paraphernalia is about as ridiculous as would be some costume designer in the days of bustles and pneumatic forms writing about the unsightly appearance of the Venus de Milo, her poor figure with its big waist and all that.

As all these words are written under the head of the Biltmore building it is to be assumed that the gentle reader by this time is wondering what in the world they have to do with the case. The answer is, they have everything to do with it. The Biltmore is one of the newest and largest buildings in New York. It is among buildings what the Ashokan Reservoir is among reservoirs. It is one of those last words, and it proves what I have said about architecture, namely, that it is passing out of the bustle and false front stage and into the beauty unadorned stage.

Every boy and girl and man and woman should take a pilgrimage to the vicinity of Madison Avenue and 43d and 44th Streets to see an example of real architecture—not perfect, of course—nothing human is perfect—but good—almighty good.

Hardly a bump from top to bottom, just enough to make it interesting. Just enough mouldings are there to make the bottom look like the bottom and the top look like the top.

No colonnaded and entablatured excrescences at entrances, just a broad expanse of wall and window, window and wall, every window fitting a room, no doubt (I've never been inside the building), and every room fitting its window or windows.

Here the building has a chance to show itself. Its height is not "concealed." Neither is its breadth.

Some old man-milliner may say it

shows poverty of—but nobody could say that. It shows a wealth of originality and taste because the designers knew when to stop. A great dry-goods box, somebody else might say. But that won't hold for a tenth of a second. That's the same as saying that a painting is nothing but a flat piece of canvas.

Why didn't the designer run the sill course at the bottom of the colonnade which forms the decoration of the top of the facade clear around the corner instead of stopping it where he did and letting the corner run through to the top without a single break? Because in this writer's humble opinion he had a streak of inspiration or genius at the time which stopped him in his mad career.

There are some people in the town who could improve that colonnade by making it less robustuous or that cornice by making it less Teutonic. But I don't think of any that wouldn't have offset their ability in refining these by spoiling the front in other ways, so I say hold the hand that would change a line. Next time, working in the same direction, it may be done more to my taste.

The outward form of any building is all that the onlooker can judge, and it is this form that the architect designs. The art of making the outward form beautiful, truly beautiful, is the rarest art in all the world. Building once was a dead thing. For ages upon ages a building once enclosed to keep out the rain and snow and wind performed no further function, except that of a fireplace. The architect was the designer of a statue, and Heaven knows a beautiful statue is as hard to find as a beautiful building.

Now, a building like the Biltmore is a living thing, a machine to do many things, to perform a hundred functions. When all those foolish esoteric notions founded on dead art and membership in the Mutual Admiration Society are exploded and blown away, it will be easier to build good buildings. And a good building is the only kind that can have or be good architecture.



THE BILTMORE, ON MADISON AVENUE.



THE BILTMORE, OVERLOOKING VANDERBILT AVENUE.

Builders: Geo. A. Fuller Co.
 Terra-Cotta: Federal Terra-Cotta Co.
 Dragon Portland Cement Used Exclusively.
 Vacuum Cleaner: Vacuum Engineering Co.
 Electrical Contractors: J. Livingston & Co., Inc.
 Switchboard Grille: Wm. O. Chapman Co., Inc.
 Electric Carriage Call: Woodruff Manufacturing Co., Inc.
 Watchman's Clocks: Pettes & Randall Co.
 Metal Windows, Doors and Trim: Reliance Fireproof Door Co.

Warren & Wetmore, Architects.

Electrene Fire Extinguishers.
 Steelcrete Galvanized Lath.
 Otis Elevators.

THE BILTMORE

WARREN & WETMORE, Architects

THIS new hotel is a part of the Grand Central group, and is owned jointly by the New York Central and the New York, New Haven & Hartford railroad companies, being operated by Gustave Baumann and John M. Bowman. The site of the hotel is the plot between 43d and 44th Streets, Vanderbilt and Madison Avenues, and within its twenty-six stories are contained 1,000 rooms, 950 baths and a most extensive equipment of restaurants, banquet rooms, rooms for small entertainment, and a ballroom of majestic proportions. Beneath the hotel there is the incoming station of the railroads, which is so connected with the hotel proper that guests may come directly from the station into the lobby and get accommodation immediately upon arrival. Because of this sub-surface station there are no departments of the hotel below the ground level. The main kitchen and the entire culinary and stewards' departments are located in the stories above the main dining-room, an arrangement which is an advantage from sanitary considerations, and, if anything, also possesses advantages from the standpoint of service.

The main street entrance is on 43d Street, and leads directly to the lobby. This lobby extends as a long corridor parallel with 43d Street to a second entrance on Vanderbilt Avenue. The fur-

ther entrance on Vanderbilt Avenue leads into the women's corridor and gives a separate entrance to the northern half, which is especially provided for the accommodation of women guests. The second floor contains the main kitchens. The third floor is largely also given up to service purposes, and the fifth floor contains the servants' dormitories and other rooms for the accommodation and convenience of the help. It is also a distributing centre for the ventilating, plumbing, heating and other service systems. All the power, including service lines, such as steam for heating, hot water, electricity, compressed air, vacuum pipes, etc., which generally necessitate a mechanical equipment occupying a considerable area in the sub-basements of a hotel building, is supplied from the main power plant on Lexington Avenue, which serves the entire Grand Central group.

The fourth floor contains the Presidential suite, which is connected by a private elevator with the main floor. There are reception rooms and a large public salon on this floor as well, together with private dining-rooms and a special suite for private entertainment.

Above the fifth story the building is divided by a deep central court, the floor of which is used as a roof garden, which on the Vanderbilt Avenue side overlooks the Grand Central Station and

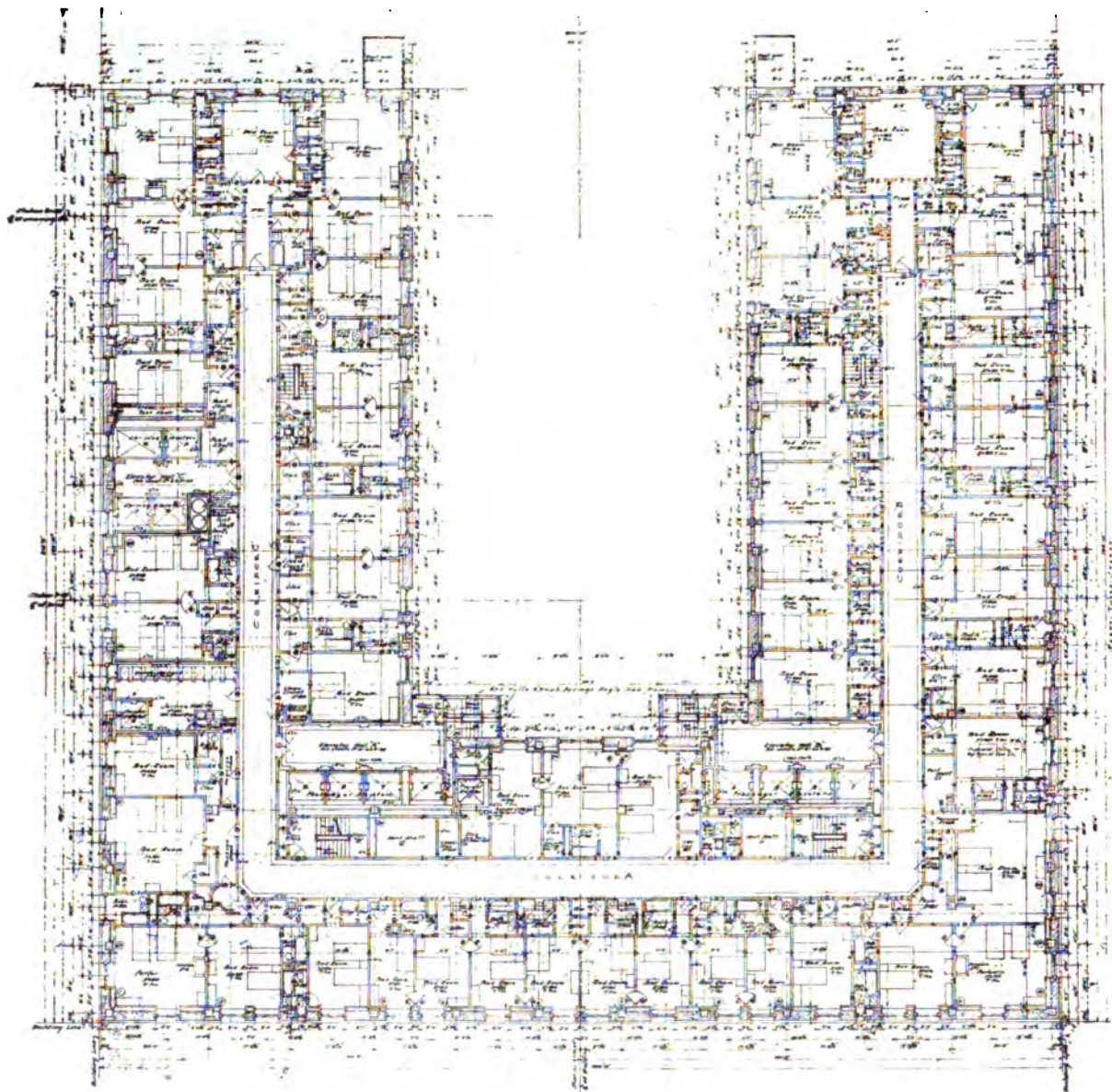


A PORTION OF THE BILTMORE SILVER SERVICE.
Made by the Gorham Co.



THE SUMMER GARDEN IN THE COURT WHICH OVERLOOKS VANDERBILT AVENUE AND THE GRAND CENTRAL STATION.

Terra-Cotta: Federal Terra-Cotta Co.
Star Expansion Bolts.
Grant Overhead Pulleys.
Metal Windows, Doors and Trim: Reliance Fireproof Door Co.
Woodwork: Sloane & Moller, Inc.



THE BILTMORE, A TYPICAL STORY OF ROOMS.

Warren & Wetmore, Architects.



THE VESTIBULE OPENING ON 43D STREET AND THE LOBBY CORRIDOR.

Photographs: Byron Co.
Ornamental Plaster: McNulty Bros., Inc.
De Vigan Caen Stone.

Otis Elevators.
Interior Marble: John H. Shipway & Bro.



THE FOYER AT THE 43D STREET ENTRANCE. MAIN STORY.
Interior Contractors: W. & J. Sloane.



Warren & Wetmore, Architects.

THE PALM ROOM. MAIN STORY.

Lighting Fixtures: Edward Caldwell Co.
Electrical Contractors: J. Livingston & Co., Inc.
Photographs: Byron Co.



THE MAIN RESTAURANT. MAIN STORY.

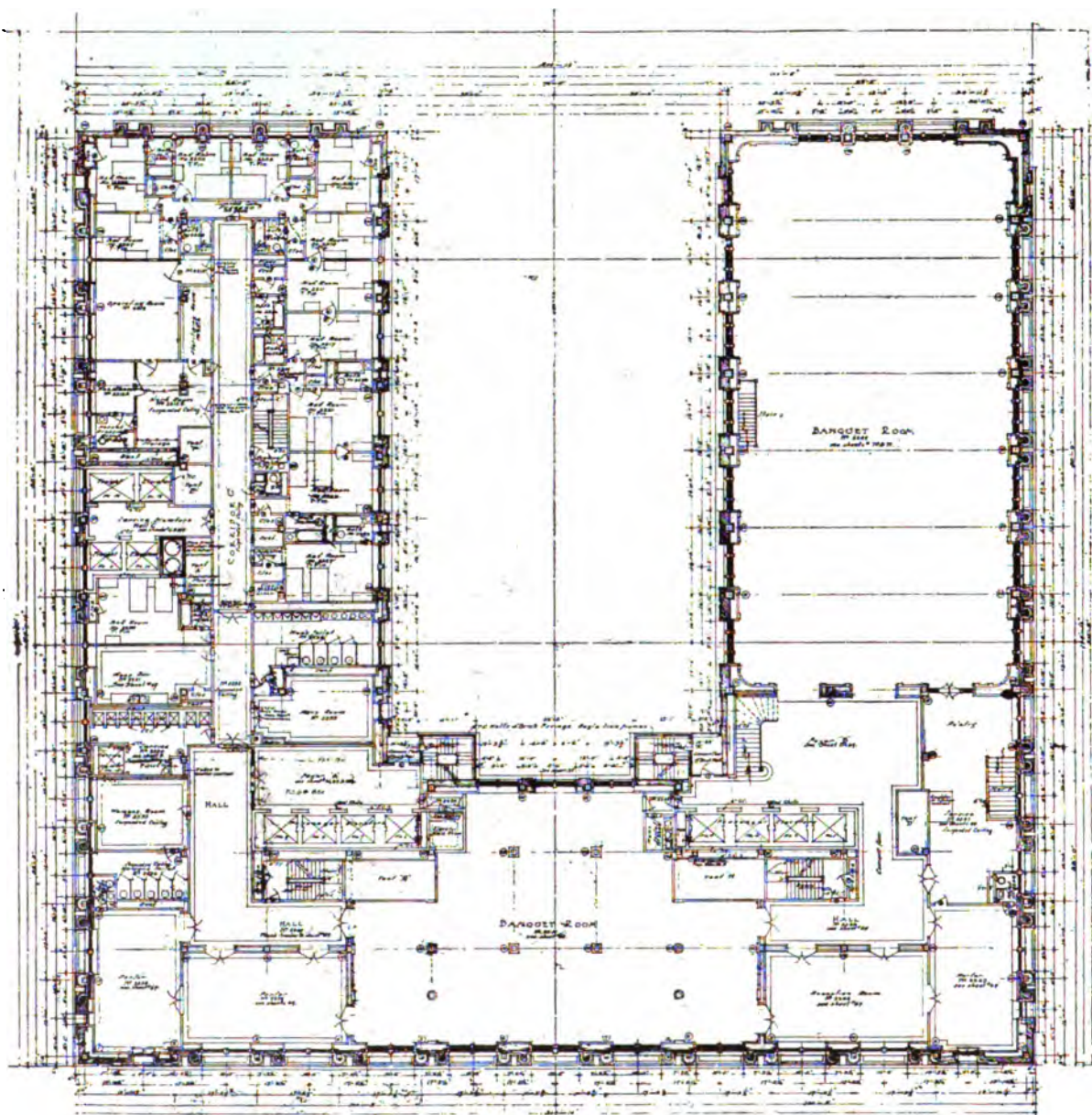
Silver Service: The Gorham Co.
Draperies Made by Orinoka Mills.
Marble Filasters: Batterson & Eisele.



GRILLE ROOM AND MEN'S CAFE.

Grill and Banquet China: Bauscher Bros.
Interior Woodwork: Sloane & Moller, Inc.
Photographs: Byron Co.

Warren & Wetmore, Architects.



THE BILTMORE. THE 19TH STORY PLAN.

Warren & Wetmore, Architects.



THE BALL ROOM IN THE 19TH STORY.

Thonet Chairs.
Murphy Varnishes Used.
Painting and Decorating: Robert E. Mackay Co.



BANQUET ROOM, 19TH STORY, AND MUSIC ROOM ON 1ST STORY.

Grill and Banquet China: Bauscher Bros.
Painting and Decorating: Robert E. Mackay Co.
Interior Marble: John H. Shipway & Bro.



SMOKING ROOM AND BAR AT STATION LEVEL.

Murphy Varnishes Used.
 Interior Woodwork: Sloane & Moller, Inc.
 Interior Contractors: W. & J. Sloane.



WOMEN'S RECEPTION ROOM, MAIN FLOOR, AND SALON OF THE PRESIDENT'S SUITE.
Interior Woodwork: Sloane & Moller, Inc.



A TYPICAL ROOM.

Draperies Made by Orinoka Mills.
 Wall Paints: The Sherwin-Williams Co.
 Beds: Whitcomb Metallic Bedstead Co.

Chairs: The Elgin A. Simonds Co.
 Painting and Decorating: Robert E. Mackay Co.
 Lighting Fixture Glassware: Gill Brothers Co.

provides in summertime a roomy and attractive summer garden for the guests of the hotel.

Above, the sixth to the twentieth floors are typical guest room floors, the arrangement of which is clearly shown by the accompanying plan. The top story contains in one of the wings the great banquet hall, which will provide comfortable accommodation for the largest assemblages. Connected with this there are a series of smaller reception rooms or private dining-rooms, a commodious banquet hall and the necessary serving pantries and kitchens. It will be possible to use the banquet hall in the summertime as a restaurant.

The decoration of the various portions of this building have been worked out with the usual care which characterizes the work of Warren and Wetmore. Many of the rooms are treated with extreme richness of decoration, but without flamboyant display. The guest rooms are plainly decorated and so finished that they

may be easily maintained in a cleanly and wholesome condition.

For communication throughout the building there are eight passenger elevators in two groups, of the Otis traction type; and in addition five service elevators and several other short rise lifts, elevators and dumbwaiters. There are six continuous staircases leading from the main floor to the roof, two of which are brick-enclosed fire towers built in connection with the elevator shafts.

The building is provided with four main standpipes rising in the four regular stairwells, equipped with the usual hose attachments at each floor. There is Siamese hose connection at the street for each of these risers, which are provided with a continuous supply of water at all times from a 5,000-gallon roof tank which is supplied from an emergency fire pump with a capacity of a thousand gallons per minute against a 450-foot head.

There are four fire-alarm stations on each floor, connecting with indicator sta-



TELEPHONE BOOTHS.

Made by Acme Cabinet Co.



THE BARBER SHOP.

Barber Chairs: Theo. A. Kochs Co.
Chicago Spring Butts.
Evans "Crescent" Expansion Bolts.
Wall Paints: The Sherwin-Williams Co.



THE MAIN KITCHEN.

Kitchen Equipment: Walter J. Buzzini, Inc.
Refrigerators: White Enamel Refrigerator Co.

tions in the chief engineer's and manager's offices, and with the city fire-alarm system. Four watchmen's clock stations are also provided on each floor and for emergency fire-protection, "Electrene" extinguishers have been placed about the corridors.

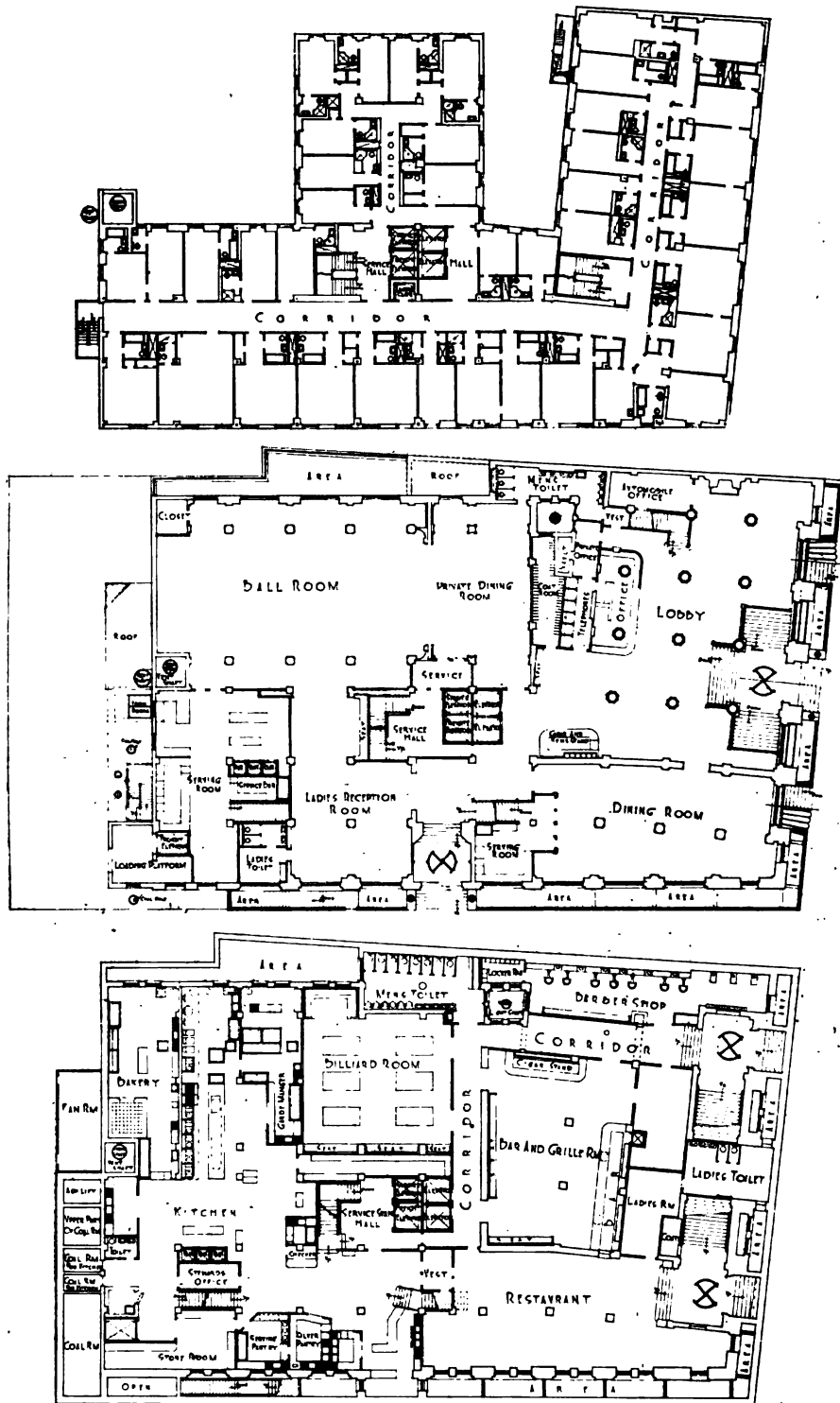
The George A. Fuller Company built the Biltmore Hotel. The architectural terra cotta was made by the Federal Terra Cotta Company, and "Tapestry" brick was used. Dragon Portland cement was used exclusively; 40,000 square yards of "Steelcrete" galvanized 24-gauge lath were used. The copper-covered windows and metal-covered doors were made by the Reliance Fireproof Door Co. J. Livingston & Company, Inc., were the electrical contractors. The electric carriage call system was put in by the Woodruff Manufacturing Company, Inc. The switchboard grills were made by William O. Chapman Company, Inc. The Vacuum Engineering Company put in the cleaner system, and watchman's clocks were supplied by the Pettes & Randall Company.

Sloane & Moller, Inc., did the interior

woodwork. Telephone booths on the first floor, of Circassian walnut, and on the grill floor of quartered oak, are of a special type, made by the Acme Cabinet Company. Robert E. Mackay Company did the painting and decorating. The varnishes were manufactured by the Murphy Varnish Company, and wall paints were made by the Sherwin-Williams Company.

The brass beds were supplied by the Whitcomb Metallic Bedstead Company; the bedroom chairs by the Elgin A. Simonds Company, and light fixture glassware for the bedroom suites was made by the Gill Brothers Company. The draperies for the windows and the door hangings were made by the Orinoka Mills.

The silver service was made by the Gorham Company, and the grill and banquet china was supplied by Bauscher Brothers. Walter J. Buzzini, Inc., equipped the kitchens, six in number, including the banquet kitchens. The refrigerators were made by the White Enamel Refrigerator Company, and the barber chairs were made by Theo. A. Koch & Company.



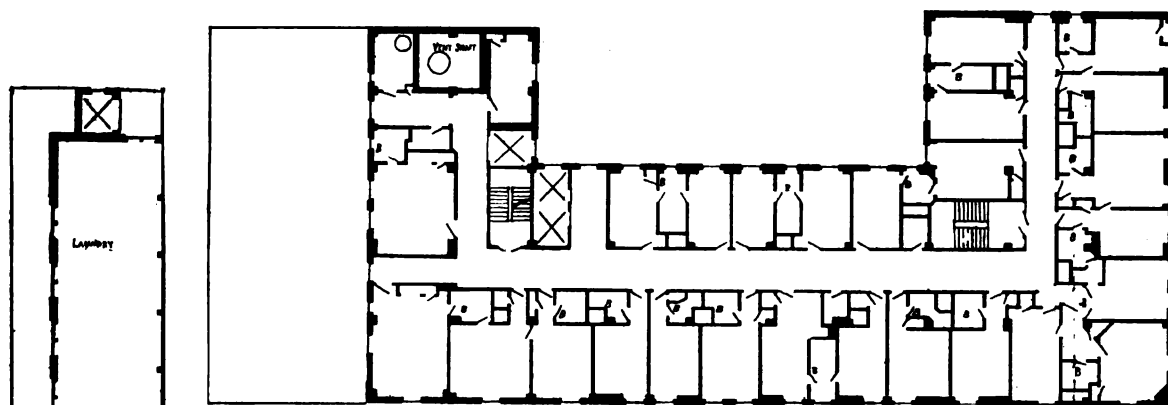
HOTEL BANCROFT. PLANS OF BASEMENT, MAIN STORY AND TYPICAL STORY.



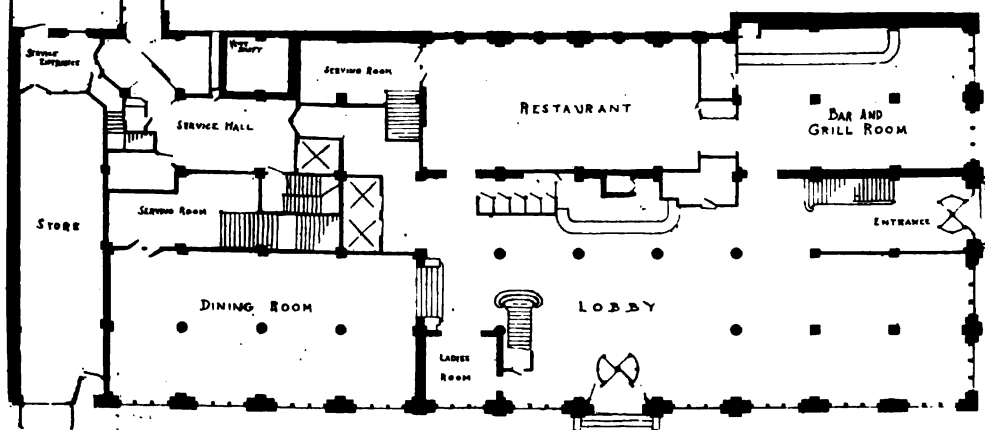
HOTEL VENDIG. LOBBY AND DINING ROOM.

Clock System: The Magneta Co., Inc.
Silver Service: The Gorham Co.
Chairs and Tables: Jacob & Josef Kohn.

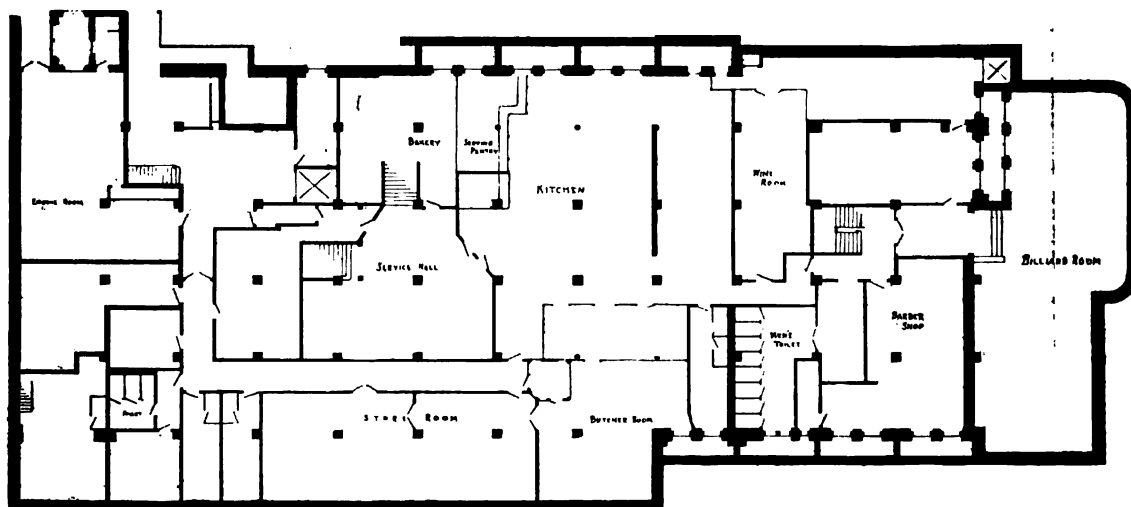
Esenwein and Johnson, Architects.



Sample rooms are provided with folding beds so as to make the rooms more commodious by day.



The extension which is not shown contains the power plant.



HOTEL LAWRENCE. PLANS OF BASEMENT, MAIN AND TYPICAL STORIES.



Otis Elevators.

HOTEL LAWRENCE, ERIE, PA.

Esenwein and Johnson, Architects.



HOTEL LAWRENCE. GRILL ROOM AND LOBBY.
Restaurant Chairs: The Elgin A. Simonds Co. Esenwein and Johnson, Architects.

PROGRESSIVE ARCHITECTURAL CONSTRUCTION

By FREDERICK SQUIRES

Plate II. Houses Built of Precast Sections

MR. GROSVENOR ATTERBURY, working under an appropriation made by the Russell Sage Foundation, has developed a system of building construction whereby mechanical devices have made possible the use of larger building blocks than could be handled by man, thus largely eliminating hand labor, and has obviated, by using hollow precast factory-made slabs or sections, many of the disadvantages of the old poured concrete floor construction.

His system consists of making at the factory under cover and with perfected machinery large standard sized wall and floor slabs properly designed, reinforced and cured. These are taken to the building on cars. At the building is provided a derrick which raises them into place. Probably the most intelligible way to describe this system is to go through the process step by step. We will start at the point where the footings are in place. A typical foundation wall section has been brought to the job. It consists of inner and outer faces connected and made monolithic with webs shaped like I-beams. The standard blocks or sections have a groove on one edge and a tongue on the other, the openings in the erected slab being vertical. Specially designed insets are provided in the widths of the vertical sections into which a lifting device engages when lowered through one of the tubular openings. The section or slab

is thus lifted from the bottom and the interior, so as to avoid any projecting apparatus, and swung bodily by the derrick and lowered to its place on the footings. A small quantity of concrete is poured in the openings to insure a perfect bedding of the slab. The next slab is set in place with its tongue in the groove of the first one. This operation is repeated until all the foundation walls are in, bringing the building up to the first story level. The exterior joints are calked with oakum. The floor slabs, which have been made in the factory and which are hollow with openings running in one direction only and are reinforced at the bottom with heavy metal and in the top of the slab with lighter metal, are brought to the job and lifted in place by the derrick. They are the full length of the span and in width about five feet. Where the cores would show openings in an outside wall the ends are stopped with concrete plugs. The slabs as a usual thing have the beams running parallel with the outside walls so that this difficulty of having to stop the ends doesn't occur in many cases. Where two slabs come in contact at the ends they are bound together with iron straps, each strap let into adjoining slabs and concreted in place. On the wall, before the slab is set, has been placed a thin sheet metal cap over the vertical wall opening, and concrete is poured between the ends of the adjoining slabs so as to insure a



FLOOR SLABS AND WALL BLOCKS IN THE STORAGE YARD.



EXTERIOR AND INTERIOR DETAILS THAT SHOW THE CONSTRUCTION.

proper bearing of the slab on the wall. Such grouting is resorted to throughout the building and is very efficient.

In the forming of the first story walls attention must be paid to the door and window openings. The wall slabs are in all instances from floor to ceiling, except where openings occur and in case of both door and window openings the frame comes up against the floor slab of the floor above. Up to the wooden sill height of the window is placed a block, the upper openings of which have been closed. On each side is a groove in the wall section into which the frame is slipped. Each floor slab that projects through the wall is provided with a wash. The wall slabs are finished so as to show exposed aggregates outside and are finished smooth on the inside and panelled so as to require no plaster or wood trim. The floor slabs are finished smooth on the underside but are provided with nailing strips for the wooden floors on the upper side.

The placing of the next floor of slabs is similar to the one just described. The flat roofs are made like the floors, except that they are covered with a cinder fill and a waterproofing coat which is cemented and covered with a regular Barrett specification roof. The slanting roofs of these particular buildings are not

so simple in construction or so characteristic of the methods as the other roofs. This, for the reason that it was necessary in this particular group of buildings to make the roofs similar to those on the surrounding houses. A similar comment might be made on other varied features of this group, which by reason of local conditions could not be made a pure example of the standardized hollow sectional system.

The details show more of the construction than my space allows me to describe. The precast method which has been heretofore successfully used in factory construction is here for the first time, to my knowledge, applied to a highly designed group of buildings. Certainly the use of the hollow section and the methods of manufacture, transportation and erection are entirely novel. The result is extremely successful from an artistic standpoint and is certainly logical construction. Mr. Atterbury is everywhere acknowledged to be one of our leading designers, and he has shown in this group of buildings, as well as in many others surrounding it, the courage to try new methods and the ability to get successful results from them. I remember at college a man who held records for reading Greek and throwing the hammer. Anybody who has seen the architectural beauty and the constructive inventiveness of the standard precast concrete houses will agree that Mr. Atterbury has won a similar distinction.



THE FACTORY, STORAGE YARD AND ERECTING DERRICK.

Department of Fireproofing and Fire-Prevention

Conducted By **GEORGE H. STEWART**

Annual Fire Loss

During 1913 the tax on the country's resources from fire loss amounted to \$224,723,350, little more than a half a million less than the fire loss for 1912, but about \$10,000,000 less than 1911 and 1910. The loss was particularly heavy in the last seven months of the year, June, July and August being particularly heavy.

No one section of the country was visited by general conflagrations, with the exception of the fire at Hot Springs, Ark., which caused a loss of over \$2,000,000. The fires were distributed through all sections of the country and all classes of buildings suffered correspondingly. To generally express it, it was an average year. When we contemplate the amount of the loss, this average fire loss is a very serious matter. For the last eight years the annual loss has been above \$200,000,000 every year and counting in the great San Francisco fire, the average amount of the loss during the same period is \$255,000,000. During the past 37 years, the fire loss in the United States and Canada has reached the gigantic total of \$5,631,389,675, or an average annual loss of \$152,199,721.

The public is being educated, however, and there is a more rigid inspection of buildings with a view to discovering defects and the state legislatures are lending their efforts to curtail the excessive fire waste. Many states now have their fire marshals, who are keeping a much closer watch on incendiary fires and are checking this evil to some extent. In time the tide will undoubtedly turn in the other direction.

During the month of January in the new year, of 1914, the fire losses have exceeded those of 1913 by over \$3,000,000, the total for the last month being \$23,204,700. This large total was made up by 361 fires, causing a loss of \$10,000, or over, very well distributed over the country, and no single fire exceeding in loss the sum of \$500,000. The biggest fires were in Montreal, Canada; Brooklyn, N. Y.; and Manchester, N. H., all of which amounted to \$500,000. There were seven other fires which exceeded \$300,000, and fifteen more which exceeded \$200,000. In New York City, the aggregate of a number of fires amounted to \$610,000.

We are indebted for the above figures to the Journal of Commerce and Commercial Bulletin, which keeps carefully compiled records.

An interesting comparison is found in the fire losses of Great Britain, which aggregated during the year of 1913, \$17,623,744. This amount includes all fires which have caused losses of \$5,000 or more, and to get at the actual total a large sum would have to be added to account for a very large number of small fires, the losses of which are not included in the record. In compiling the record of fires in the United States and Canada, the Journal of Commerce adds 15 per cent. for small and unreported fires, but even were this done to the British fire record the increase would be extremely slight as compared with ours. Even on a per capita basis, our fire loss exceeds many times that of Great Britain.

Croton Water At High Pressure

The Merchants' Association through its committee on fire prevention and insurance, has proposed the introduction in Manhattan of a high pressure system to replace the present gravity system. Manhattan south of 59th Street is now supplied by gravity from the Central Park reservoir under a maximum head of about 120 feet. At times this head is insufficient to supply water to the top floors of four-story buildings and in the greater number of buildings it is necessary to provide roof tanks and to keep them supplied by private pumping. The plan proposed is to pump the Croton water supply against a 200 foot head which it is figured will deliver water in the lower part of Manhattan at about 75 to 80 pounds pressure at street level and at 25 pounds pressure on the top floor of all buildings of ten stories height inclusive.

The results that might be accomplished would be of great advantage to the city, as all private pumping in buildings of ten stories or less would be eliminated, thus relieving owners of operating expenses as well as the first cost of installation for pumps, tanks and the necessarily heavy construction for the support of the tanks, especially in automatic sprinkler equipments.

The strongest recommendation for the high pressure service is in the increased use of automatic sprinklers and water curtains made possible. Automatic sprinklers could be operated from the city pressure in all buildings up to ten stories height, thus eliminating from the cost of installation of these systems the pumping plants, gravity tanks and pres-

sure tanks now required. The Association's committee figures that the cost of the installation of automatic sprinklers would be reduced at least 40 per cent., and that a very much more general installation of sprinkler systems would result, together with the installation of water curtains which would reduce the conflagration hazard and materially affect the insurance charges, possibly reducing them as much as 75 per cent. on the protected premises.

The committee proposes to procure the services of a competent hydraulic engineer to make a thorough investigation and lay the matter before the Board of Estimate and Apportionment.

American Society of Fire Prevention

This society begins its career with very worthy objects and very high aims. It is proposed to compile and furnish detailed information concerning fire-proof materials and methods of construction and equipment to all who are interested; also to inspect buildings of all descriptions and

conduct tests of building materials and safety devices, and to report upon them; further, to investigate and examine the causes of fires and to publish reports with recommendations thereon. These are some of the nine avowed purposes of the society, and the organization will indeed accomplish a very worthy purpose if it fulfills even a modicum of what it proposes. The society has just issued the first number of its official organ, "Fire Prevention, a National Magazine For Safeguarding Lives and Property." The February issue is Volume 1, Number 1, and it contains, among other interesting items, an article by Reginald Pelham Bolton on "Danger Spots in Fire-proof Buildings." Mr. Bolton's subject is one with which he is thoroughly familiar, namely, the elevator shaft, easily the weakest spot in the fire protection of a building if not properly safeguarded and enclosed. There is much meat in this short discourse by Mr. Bolton, and if the general high standard set by this first issue of "Fire Prevention" is maintained it will indeed fulfill a worthy purpose.



HOTEL ADELPHIA LOBBY.

Interior Decorators: L. Alavoine & Co., N. Y.
Lighting Fixtures, Sterling Bronze Co.
Interior Marble: Batterson & Eisele.

Horace Trumbauer, Architect.



THE HOTEL ADELPHIA, PHILADELPHIA, PA.

Standard Plunger Elevators and Dumbwaiters.
 Atkinson-Morse Garbage Destructor.
 Ornamental Iron: The Wells Architectural Iron Co.
 Grant Overhead Pulleys.
 Star Expansion Bolts.
 Corbin Hardware.
 Bronze Work: Penn Brass & Bronze Works.

Horace Trumbauer, Architect.



HOTEL ADELPHIA, LOBBY AND DINING-ROOM.

Interior Decorators: L. Alavoine & Co., N. Y.

Lighting Fixtures: Sterling Bronze Co.

Interior Marble: Batterson & Eisele.

Silver Service: The Gorham Co.

Ornamental Iron: The Wells Architectural Iron Co.

Horace Trumbauer, Architect.

Tables: M. Reischmann & Sons.

Diamond Door Hangers.

Bulletin Boards: U. S. Changeable Sign Co.

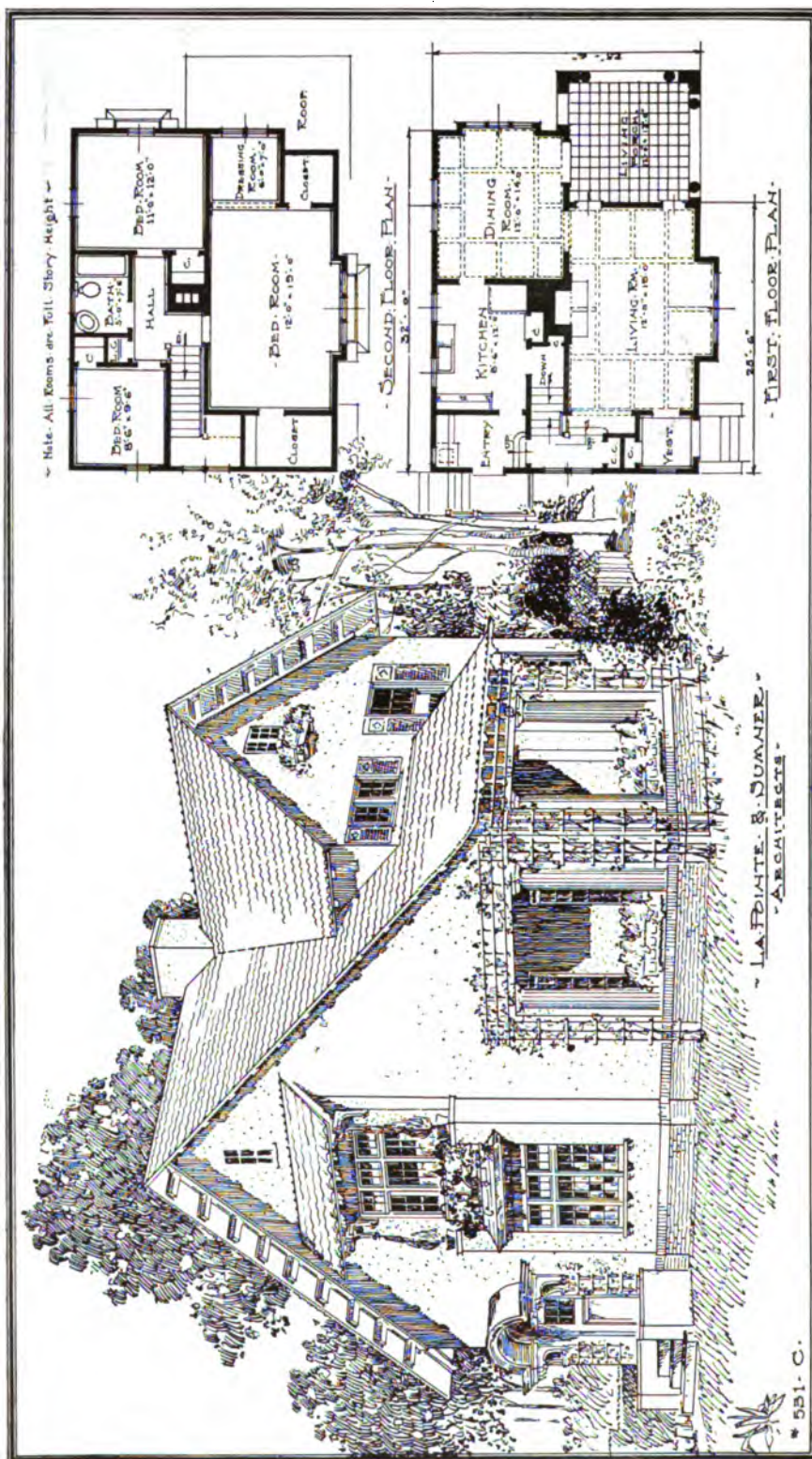


ROSS & McDONALD, ARCHITECTS.



FORT GARRY HOTEL, WINNIPEG, CAN. D.A.

Gleason-Tiebout "Camia" Glass in Lighting Fixtures.
 Bronze Counterscreen and Railings: Estey Bros. Co.
 Bulletin Boards: U. S. Changeable Sign Co.
 Grant Overhead Pulleys. Evans' "Crescent" Expansion Bolts.
 Star Expansion Bolts. Chicago Spring Butts.
 White Enamel Refrigerators. Otis Elevators.
 Chairs, Tables and Settees: Jacob & Josef Kohn.



A SMALL STUCCO HOUSE.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

Volume XLVI

MARCH, 1914

Number 3

It is hardly to be expected that any tears will be shed, in sympathy or otherwise, for contractors and their losses. Somehow or other they seem to have gotten a bad name, and you know what happened to the dog that got the bad name. There are many institutions, as this old earth rolls along, that get bad names, and some of them are hung and others—well, can we hang them?

The railroads, for instance. (Parenthetically I would mention Wall Street, which seems to have gotten a bad name and to have got what goes with it.) But the railroads—everybody that reads the newspapers and magazines knows what they have been doing. They used to carry things with a pretty high hand; whole legislatures in their vest pockets, judges under salary, town councils owned bodily, and bought mighty cheap at that. The railroads used to control this entire nation through their peculiar connection with politics.

And now where are they? Almost ruined, on their knees begging for mercy from that dear public they used to laugh at—and laugh at now, too—a little—a tremulous, pathetic little laugh—because that dear public, in bringing the railroads almost to the verge of ruin, has hurt itself, and is hurting itself, as much as—no, more than the railroads are hurt. For the railroads are a part of the human system, and as necessary to this nation as blood is to the body.

Did I say that contractors have gotten a bad name? Yes. I referred to all contractors and the art and practice of contracting. The very word savors of infamy. The general public almost invariably puts the word "rascally" before contractor. The contractors who supplied the paper-soled shoes and shoddy blankets to the army during the Civil War, thereby laying foundations for some of the large fortunes of today; the contractors who farmed the taxes in France; the contractors who used to build roads in the State of Nowhere, are but samples.

If you want sympathy, pity—do not ask it for the contractor.

And when you talk about the kind-hearted owner who was willing to let somebody make a dollar, for pity's sake don't refer to a con-

tractor. What maudlin fellow is this, forsooth? (By the way, I'll have to swear off on that word forsooth because I see our friend Thumtack has adopted it.)

Well, if I would change the word and call him a builder I would not be defining him at all, for have I not said in these columns that everybody is a builder? The owner would think I meant him; the architect would, of course, know I did not mean him, and if anybody were reading this who knew an architect well enough to have listened to him talk about his work he—the friend of the architect—would be sure I meant the architect, for, does not the architect build all the buildings he builds and does he not say he builds them, too? He never attempts to deny it. No, I am talking about the men that lay the bricks—I mean hire the bricklayers—and actually do the work of building. In order to distinguish them—to define them, as the logician says—I will have to call them contractors.

Some day I purpose to tell you about Christopher Vance, the builder. He was the father of little Joe Vance, later Joseph Vance, the hero of one of the greatest stories ever written. Christopher Vance bought a second-hand sign from a peddler once upon a time—but there I go.

I called them contractors because there is no other name for them, and I said that they had gotten a bad name. In sorrow and with many apologies I make this statement. I mean well for those same poor fellows. If I had my way, I'd have a law passed that no contractor should ever be permitted to make less than twenty-five per cent. profit, and then the world would have to look somewhere else to replenish its bank account.

I mean by this that people like my friend, the ex-mechanic mentioned last month, would not be able to build up their reputations the way he did.

Having now made myself clear about my meaning in using the word contractor, and having hinted that he is not as black as he is painted, I venture to say that he is as necessary a part of the body politic as are the railroads, which are now on their knees to the dear public whose master they once were.

Buildings are like lots of other things in this life of ours; they look different from different points of view. For instance, did you ever stop to think how terribly they depreciate? Everybody knows, for instance, how automobiles depreciate. Twenty per cent. of the automobile's value drops from one of them the instant the purchaser has paid for it and has run it out of the door of the shop of the dealer. And it drops away in tens and twenties as it rolls along the street to the purchaser's barn.

Why, it's something terrible, say the economists. The country

is going to ruin with this craze for automobiles. (Parenthetically I would say that I have not seen any signs of anxiety on the part of these selfsame economists over the fact that according to the latest statistics available in the same year when I heard the shrieks about automobiles the whiskey bill of the United States was a little matter of \$7,000,000 more than the automobile bill, while the beer and tobacco bills were each about \$300,000,000 more.)

Well, buildings depreciate just as fast as automobiles. I think I can prove this to you. They are the most expensive luxury of the rich, and the contractors have, by their peculiar arrangement with the trade unions, made them so, thereby subjecting themselves to a competitive effect or resultant that is worse than anything that the railroads ever dreamed of.

Almost all the skyscrapers below Fulton Street in New York City are examples of unwise expenditure of money. Many of them paid when new and before the competition of more skyscrapers came. Now they are beginning to run behind.

And the little old buildings in between the skyscrapers—they are in a bad way, too. Some few are used as billboards above the first story. Take the case of the one at the northeast corner of Ann Street and Broadway. The ground and second floors seem to be all of the building that is tenanted, for the entire frontage above is covered with signs.

Look at all the old buildings on the side streets leading away from Broadway to the West. They are worthless. The ground is there and the ground has value; but the buildings—what do you think they are worth? There's not a building from the Battery to Union Square that you wouldn't have to pay money to have removed.

An example of the value of an old building is one that I read of in the newspapers the other day. A residence started in Montclair, N. J., by a millionaire was to be so fine that they brought the stone from Scotland. It was almost finished when the owner lost his fortune. No one wanted so fine a house. It stood empty and unfinished for a number of years and had at last to be torn down to relieve the ground of its burden, literally and metaphorically.

Though new in the sense of never having been used, the house sold for nine hundred dollars.

The Gillender Building, sixteen stories high, at the corner of Wall and Nassau Streets, was removed at a cost said to be \$50,000, though less than sixteen years old.

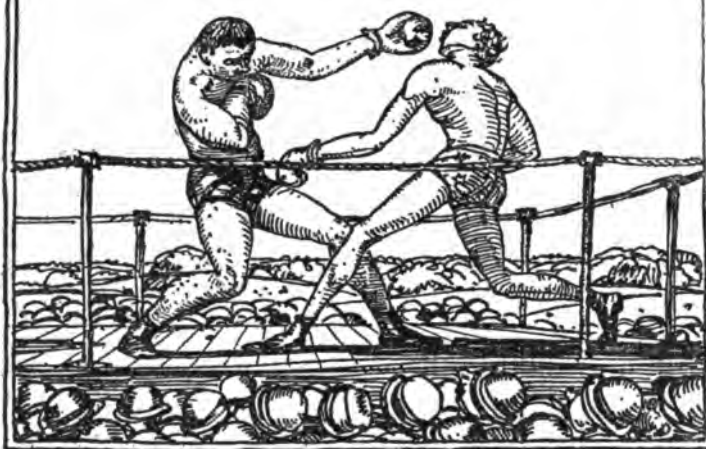
Perhaps you will say this way of estimating the value of buildings is fallacious. I think it is not.

Theodore Starrett.

ARCHITECT-TONICS

CONTRACTORS

By TOM THVMTACK



Once I asked a little pickanninny why they named her "Lilly," and she said, "Yessir, it were 'cause I were so verry brack." That's the reason why "contractor" is the name of a breed of men who don't know what contraction means; men who must expand or bust; men who expand and often bust, but men who never, by any chance, contract. Contractors are the generalizers of the business world; they are its optimists and they are its inveterate gamblers. You can't contract a bet and that's how they get their business. The only things they do contract are debts. The architect takes a gamble now and then in competitions, but the contractor's every deal is a gamble. He is the one original guesser.

Why must he be a gambler? Because the result which he must produce is a definite thing and the means by which he must produce it cannot be definite, since they are governed by weather and changing prices of labor and materials, and many unforeseen contingencies. Of course all these things work both ways and that's why they take the chance. The custom is for the owner to seek to obviate his own risk by contracting for the fixed thing, the building, at a fixed price and let the contractor take the gamble. If the contractor has no

money, as very often is the case, it is plain as the nose on Cyrano's face that if his contract is too low he cannot deliver the fixed thing, so that he either fails or delivers an entirely different building. He has played "heads I win and tails you lose" on the unwitting owner either way you look at it. The contractor likes this way of doing business, for if with nothing more, he gambles with his solvency and with the owner's ability to hold him to a losing contract.

His mind is the melting-pot for weather, human nature, estimating, strikes, prices, panics, tariffs, floods, wrecks, owners, architects, banks, delays, materials, subs, plans and past performances. From this melting-pot he pours his final figures and each melting-pot pours different figures, while Tom Thumtack sits back and hides his cards behind his fingers and only bets after his opponent has spread his cards, face-up, upon the table. No melting-pot for Tom. To him figures talk and he knows every bidder's figures. Tom knows them all and each contractor knows only his own and isn't very sure of those. It is melting-pot against stacked deck, and who do you think should win?

What kind of a man heeds the call of such a calling? Every man who likes to take a chance. They are an interesting crew—Irish, Jew and engineer, politician, inventor, Italian, born leader and the man-whose-father-did-it. I've drawn you his composite picture; note the daring eye, the persuasive mouth, the Napoleonic chin. You'd think he would have less hair and more worried lines? You are thinking, sir, of a sub-contractor, who really has something besides sleep to lose, not my brave expander. He started with nothing and now like Kipling's American,

"Untamed, emancipate, elate,
He greets the embarrassed gods nor fears,
To grasp the iron hand of Fate
Or match with Destiny for beers."

You remember that the drain maker in the English story said the best qualifications for a good contractor were to know nothing about building. He has the financial responsibility of a penny agent and he'll gladly pose as principal for millions. You'll find him in every walk in life. Some of him walk Fifth Avenue, some walk Third Avenue, some walk chalk, but some walk Spanish. Contractors belong to every club, from the exclusive Union League to the inclusive Down-and-Out. They make a clean-up because of a drop in steel and they make a get-away because of a rise in brick. They simply bet on which way it'll go. They may have figured average labor output and then run into weather where a man does four hours' real work a day; and they may have figured winter weather and have Indian Summer till Thanksgiving. Do you wonder then that a contractor is a gambler and expander, and all ideas of contracting are obnoxious to him? If everything in the system is against him, how does he continue to exist, you ask? Why, everything is against him until the contract is signed and then he's usually the better man.



He is at a disadvantage when up against the competitive bid, but after the contract is awarded the man's real genius shows. If he finds a profit in it, all well and good; but if a loss, look out for him, his battle cry is "poor work and extras." Some are fighters and some are cajolers and some are only crooks. Their strength lies in the fact that neither of their adversaries, architect or owner, knows a thing about the "costs." Extras hawked about the street will cause a mild commotion, but extras on the job are as common as Smiths in the telephone directory.

I'll stage for you this fight for extras. Let me introduce Tom Thumtack and Big Mike Devlin, "both members of this club." Tom, thin, aesthetic, supersensitive and over-trained; Mike, thick, athletic, bull-toned and full of vigor. On their hands are the four-ounce gloves of misunderstanding and the rules are the Queensbury rules of the uniform contract, and they fight in the squared circle of the scope of the specifications. Mr. Owner sits at the ringside to cheer the victor or berate the vanquished. Who has the science in this strange encounter? Who wears the confident smile of superior knowledge? What is the prize, and who will get it? Is it Lightweight Thumtack, with his lifelong training for the sprint, trained to a single valiant effort and a humming-bird for stamina? If he wins by any accidental chance under the rules of the uniform contract the prize goes not to him, but to opulent Mr. Owner. If Big Mike Devlin outroughs him, Mike gets the prize himself. If Tom stays the six rounds allowed by law, he has lost his edge for the new licking that Big Mike has up his sleeve for him. Yes, slim Tom must make his K. O. in the rounds before the signing of the contract, for he has little chance to win the fight of extras. If the contest has been so carefully prepared that the black sheep of the extras is excluded by the color-line of careful plans and specifications, Big Mike then looks to the battle of poor workmanship and bad materials. This is a long fight and to a finish, to the very finish of the job. Mike has nothing to lose, and if he is too low on his contract—well, you can't get blood out of a turnip.

Does Big Mike like to fight? No, he doesn't just exactly like it, but he doesn't let it worry him as Tom does. He's torpid and Tom's temperamental. Just because Tom is temperamental he is a good designer. He can give charm and character to a house, meaning and dignity to a monumental building. But wars and rumors of war take the fine edge off his conception. He is not afraid to fight Big Mike, but he doesn't like to fight and he doesn't like to try to live the life of a trained artist in an atmosphere of Billingsgate.

Why are conditions so unfortunate and what should be their remedy? Take out the gambling element! Hire your builder instead of betting with him! I'll tell you a fantasy that has a moral in it.

Mike had dragged me into one of his battles and the bell had rung for the first round. A few days' rest had put my feet on springs and I felt a fighter's zest in every fighting muscle. I really had him going that first round. In the second I was not so keen, and as the fight wore on, his weight began to tell on me and I felt dizzy under his cheerful grin and the evil look in his cunning eye. He'd loose on my head the sickening fall of meteors. Then he began to change size and proportion without any rule or reason. All in a second, like a fever phantom he'd glide away in diminishing perspective and then slide back from some unexpected point upon my tottering horizon, an evil atom gaining size in upward-sweeping curves and swift momentum with each nearer foot of that interminable space for the shock of the inevitable collision. Again and again from away off in the unbelievable distance would start that speck of radium, gliding, growing, towering, crashing. It began to grow dark with a murky thickness pierced by sulphurous glares of crackling lightning and then came black oblivion.

* * * * *

Then I seemed translated to a happy land, full of crisp airs and pleasant sunshine. Before me was going up a splendid building and by my side was the strong figure of a man who was my brother-worker, and near us both stood a master who with kindly interest



encouraged us to work together. He had two purses, and on one I saw my name and on the other saw my brother's name, and from them was paid to each his wages for duties done in furthering the building. In my hand was a compass and in his a trowel. When I saw his square paper cap a great light broke upon me. This brother-helper was the builder. He and I were working side by side with one great purpose; to perfect for our employer his great bee-hive of a building. The builder's features were commanding, and his every action showed him able. Toward me he turned as one highly appreciating gifts of temperament and genius which he aimed to materialize in building. Between us both and toward our venerable employer flowed mutual helpfulness. And each of us was his agent.

* * * * *

Comes a struggle for breath! A wakening to pain! A desperate nausea! I've come back to consciousness only to find myself sagging back on my corner-ropes, weak from a terrible mauling. I look through puffed eyes across the squared circle and see my grinning antagonist waving a check for his extra.





SAINT THOMAS'S CHURCH

By THEODORE STARRETT.

OF all the buildings that have been built in the last twenty-five years, it is my private opinion publicly expressed that there are only about a dozen really beautiful ones in New York City. At least, that's all that I have discovered in my hunt for architecture on Manhattan Island.

Of course, at this stage of the game there is no use expecting a preponderance of beauty in architecture any more than there would be in expecting a ma-

jority of people to be beautiful. My own belief is that plain buildings should be foils for the beautiful ones, and we should purposely erect expanses of plainness to contrast with an occasional beauty spot. Of course, no real architect looks at it in any other way. His building is the beauty spot; the others are the foil or background.

But unfortunately the critic that knows it all—really and truly knows it, and knows that he knows—can only smile

with pity at the vast majority of our buildings, for they are all so wrong-headed, so millinered and so bedizened, so padded and so false-fronted.

When I say our buildings I mean no disparagement. I haven't been around very much, but I have seen Paris and I've seen London, and while I think Paris is unquestionably ahead of us, London is miles behind us. Berlin, from the pictures, is a fearful place architecturally. I never want to go there—at least not to see architecture.

I am not speaking of older architecture, like that, for instance, of Florence, which seemed to me to be all beautiful, and in that respect entirely unlike any other city that I have ever visited. I am concerned now with what I will call the product of new made wealth, the product of business activity—the new buildings of people whose activities have been along the line of money making and whose ideas about the fine arts are always hazy, unless, perchance, they happen to be living by the fine arts. Which latter thought explains why Paris is so fine and Florence is so beautiful.

The trouble is that the generality of money makers and money earners seem to think that architectural design to have any worth should be original. Original, forsooth! (There goes that forbidden word again.) That makes me think of Quintus Horatius Flaccus' remarks on the subject of the painter who might try to join a man's head to a horse's neck, and so forth. His picture might be original, but it couldn't by any chance be pleasing to the eye.

Original indeed! A man with his nose on the back of his head or underneath his mouth would be an original-looking

man—but there's no use in following this line of talk any further.

It has sometimes been said of great men that they bear strong resemblances to many men; in other words, their presentment seems to be a composite of that of other people. Great buildings, like great men, in this sense, are like other buildings—others that have gone before

them, mayhap. Of the four or five or the dozen beautiful buildings in this town most are copies. Maybe we have seen the original, generally we have not. That does not detract from the beauty of it. It may be that the copy is beautiful because it profits by the mistakes of the original and improves on it. The Columbia University Library is a copy of the Pantheon in Rome. This is almost the same as saying that the statue of Abraham Lincoln in Lincoln Park is a copy of the statue of Sunset Cox in front of the Wanamaker Store in Astor Place.



The two statues bear a strong similarity, in that they are made out of bronze and the subjects were both men who wore beards. The Tiffany Building in Fifth Avenue is said to be a copy of a Venetian palace. The DeVenne Building in Elm Street looks to me as if it might have been lifted out of Florence.

And now comes St. Thomas's Church to join this galaxy. It is among churches what Columbia's library is among libraries. A friend of mine who knows said, "It looks just like the best things that you see in Europe."

Gentle reader, did you ever stop and think of the difference between this country and Europe—France, for instance, or Italy, in which latter country it seemed to me that every man was an artist, a sculptor if you please? The difference is

that we have not settled down here; over there they have. Everywhere in America is the mad scramble for advancement, the mad scramble for money which means advancement. Everything into which labor enters in America is skimped, because, if too much labor enters into the production the cost is too great. In Europe the artisan or carver will spend a week on a job where here we would begrudge him half a day.

Go to St. Thomas's Church and see those carved pedestals and canopies over the niches in the main entrance and above the entrance; see the delicate carving of the entrance on 53d Street nearest Fifth Avenue; see those delicate mouldings around the windows; see the beautiful tracery of the rose window and of the arched windows that light the nave. That is the kind of work you may see on some great cathedral in Europe. And it will be only the best of them that will compare with this.

Every architectural design produces a certain psychological effect, which is another way of saying a certain unconscious or involuntary effect on the human brain. The balance and counterbalance of the different parts, the grouping of masses and voids, the disposition of the ornament, the contrasts, all affect the onlooker. If it be a great building or a great man, the effect is present, silent, indescribable, potent, for the greatness of either is written there and needs no words to prove it.

I have often stood at different points in front of the Columbia University Library

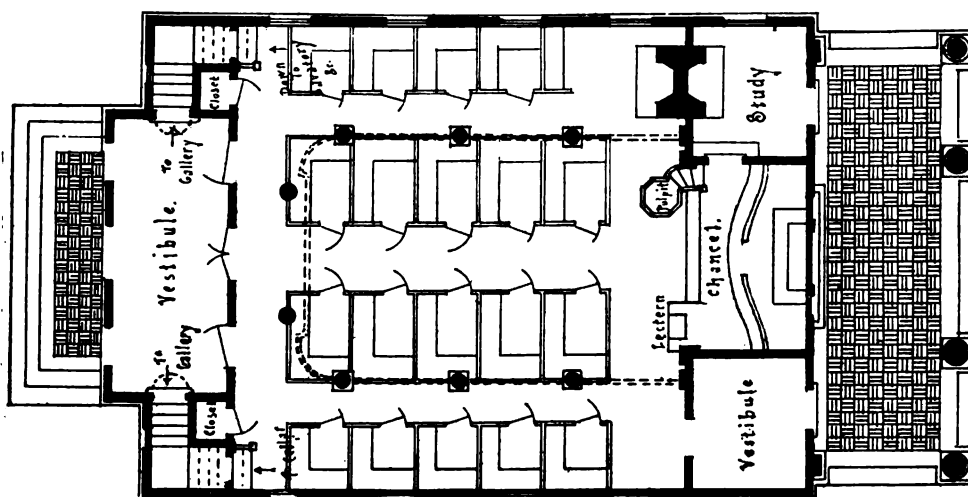
and have drunk in the marvellous balance of that design. No matter from what point you view the building it balances. There is none of that distressing feeling that comes from gazing at some ill-designed skyscraper which looks as if it were going to burst open at the top or fall over into the street. Every thought and every conception of the Columbia University Library design is that of repose, of stability, wedded to the very extreme of grace and refinement. That is a symmetrical design.

St. Thomas's Church done in a churchly style, to my eye almost toylike in its petite beauty, produces the same feeling. From whichever point you view it, the silhouette is perfect; an unsymmetrical design, yet that charming—that entrancing—balance is there always, whether you are near or whether you are far. It seems a little strange to me that the architects did not



refine all the buttresses of the tower as they did those of the nave and of the front, meaning the two which surmount the flanking piers of the entrance on Fifth Avenue. But, after all, one of the desirable things in architectural design as in other design, is to leave a few plain spots to rest the eye upon. The corner pier on Fifth Avenue and 53d Street and its corresponding pier at the west side of the tower are undoubtedly intended to mark the spots where the designers rested from their labors.

Little old New York is making great strides these days in adding to her architecture.



ALL SOULS'-IN-THE-EAST, THE NEW MEETING HOUSE FOR THE UNITARIAN-UNIVERSALIST SOCIETY AT SUMMIT, N. J.

Joy Wheeler Dow, Architect.

MEETING HOUSE PEWS AND THEIR MODERN SUBSTITUTES

By JOY WHEELER DOW.

THERE has been some interesting discussion in the Unitarian-Universalist Society in Summit, New Jersey, as to whether or not their new Meeting House, which is planned to be so historically developed in its architecture, and free from anachronism in its appointments, should be fitted with pews.

The modern church edifice has no pews. This statement might seem a very rash one for anybody to make, but it is true, nevertheless. The long and narrow benches the dictionaries call "slips," that are like the settees of a music hall or lecture room, and by courtesy called "pews" when they are dignified by a charitable cloak of Gothic detail, are not, in reality, pews at all, but a commercial experiment of the Transitional period—when art and public taste was at its lowest ebb—to economize space, and to make every seat as good as another. They were intended to make a paying investment of religion, which was one of the popular ideas of the sordid and sensational America we have only too graphically depicted by Charles Dickens in that terrible novel—"Martin Chuzzlewit."

It was about 1840 that the spirit of cheap revivals and sensationalism in our churches had its inception, culminating along about 1875. Since then, happily, it has been on the wane, till now Evangelists, themselves, if there be any left, do not like to recall those times, the memories are so distressing.

And yet, it should be remembered, there was something thrilling about the revival epoch that cannot be reproduced to-day, and which, no doubt, accounted for its long and popular sway. It was thrilling to attend a Sunday evening's service at

the Brooklyn Tabernacle, to see the vast auditorium with its amphitheatral seats filled to overflowing with people. It was thrilling to hear the little, snapping sparks of electricity explode as they ignited the hundreds of gas jets in the great chandeliers, making the building as bright as day. And then, the bass notes of the wondrous organ! Perhaps it would be the *Miserère* from *Trovatore*, that would roll over the senses with peculiar fascination, as a prelude to the Doxology.

You awaited the entrance of Dr. Talmage as that of a star actor. You watched him remove a luxurious outer garment lined with rich satin. There was neither pulpit nor desk nor any other ministerial conventionalities upon the bare platform, unless we except a single chair and a small table of the flower-stand order, beside it, upon which reposed a pitcher of drinking water and a tumbler. It detracted nothing, however, from the effect of the Moody and Sankey hymn which the huge audience united in singing. And what a chorus it was—a mighty melody with irresistible rhythm not unlike our own ragtime—to the words of

"Saviour, Saviour, do not pass me by!"

I shall never forget it. It was a mad success as a revival meeting, but—*it was not church*. Church is something so different. Of course there must be the dramatic note for anything to succeed—even a church service, an architectural design, a painting, a piece of statuary, a piece of furniture; but it is the *dramatic* note *versus* the *theatrical*. And that makes all the difference in the world. One is deep and lasting, the other, superficial and transitory.

There are a few old churches in America, still to be seen, which through extreme conservatism or autocracy were enabled to restrain the fury of the Jacobin mobs of our "Reign of Terror," and retain their pews, though many a fine example of the ancient régime in America has been shamefully vandalized.

But you are saying "if the slips or settees are not pews, have the goodness to tell us what are."

Well then, church pews, properly speaking, are rather high and square, paneled inclosures, raised a little above the level of the aisles, and fitted with pew doors which are closed during the services, and secured by little brass or wooden thumb-buttons on the inside. Engraved silver plates bearing the family name are usually affixed to the doors, and while there is a distinct sense of family privacy and domain in all this, yet there is a most generous and inviting welcome to the stranger by the very capacity of the pews, their idea of ease and restfulness, to say nothing of the delightful reminiscences with which they are surrounded—to say nothing of mute invitation extended for meditation and devotion. It should not be all a matter of unobstructed hearing and seeing when we go to church. There are other things to be considered as well.

The interiors of the pews are cushioned, and frequently upholstered in silk or cotton damask according to the family

means, depending upon the sunlight and gentle hand of time together to subdue and tone the different colors into a most harmonious and satisfying color scheme, the bright crimsons till they have become old rose, the vivid greens, pale olives and the intense blues, a varied assortment of soft drabs and grays.

Then the pews are furnished according to the different ideas of comfort and convenience which prevail in the different families. There are hassocks, pillows and fans, a patriarch's armchair and grandam's rocker, even the racks for the liturgies (yes, the older Unitarian churches use liturgies) and hymnals, are matters for individual taste.

Now, you cannot successfully pretend to yourself, for one instant, that you are attending a real church service, if you continue to sit upon a concert hall settee. It stands to reason.

You have too much education for that. And at a time when those of every faith feel the necessity of the greatest effort in devising means of increasing church attendance and church interest, let us realize, first of all, that you can establish the necessary vitalizing atmosphere only through the dramatic note of religion. And this, in turn, depending upon the significance of the environment, the amount of religious home feeling that is expressed, can be established only with the aid of the big, square, generous yet private—family *pews*.



UXMAL, PALACIO DEL GOBERNADOR.
Photograph loaned by Mr. Henry F. Hornbostel.



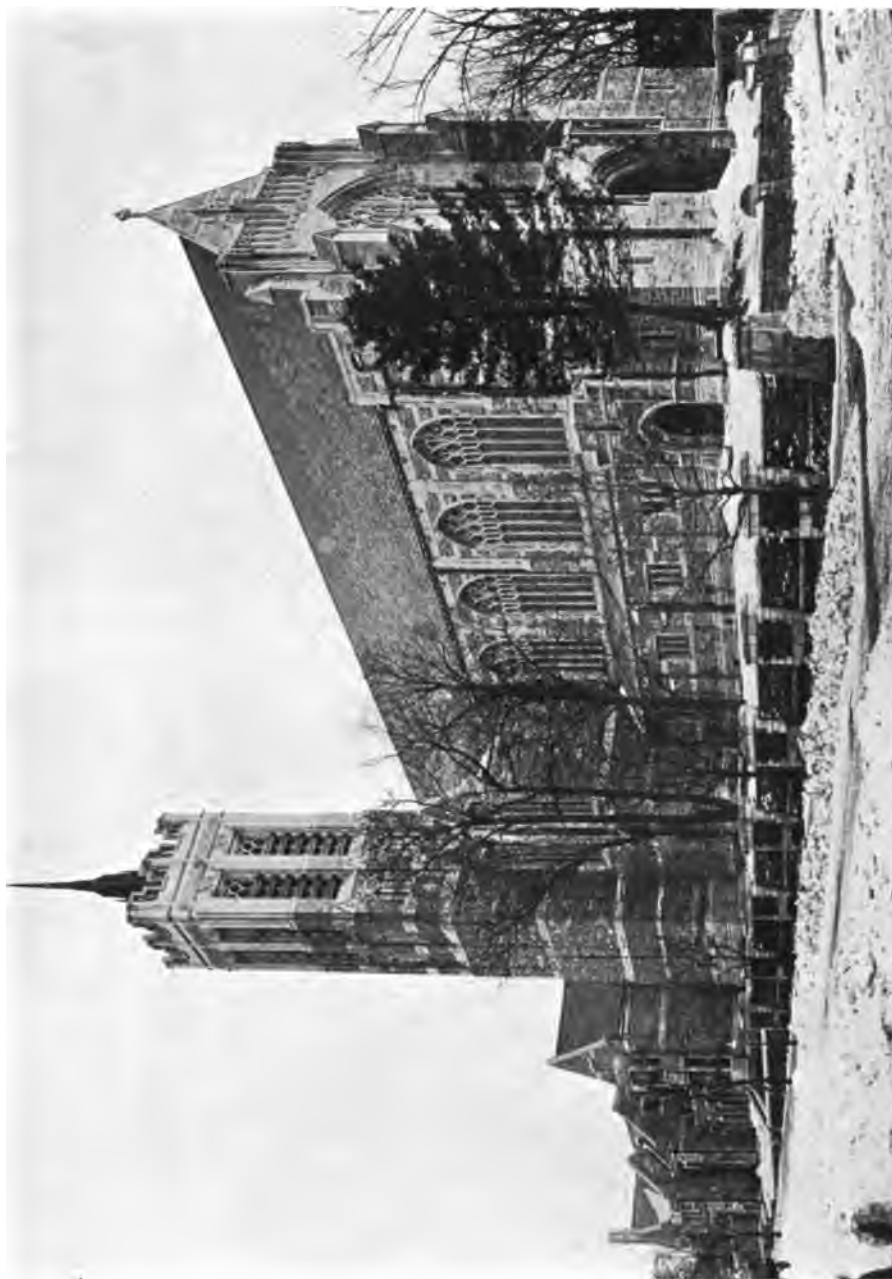
SAINT THOMAS'S CHURCH, 5TH AVENUE AND 53D STREET, NEW YORK.
 Builders: Norcross Bros Co.
 Electrical Contractors: J. Livingston & Co.
 Star Expansion Bolts.
 Cram, Goodhue & Ferguson, Architects.



SAINT THOMAS'S CHURCH, 53d Street Side.
Cram, Goodhue & Ferguson, Architects.



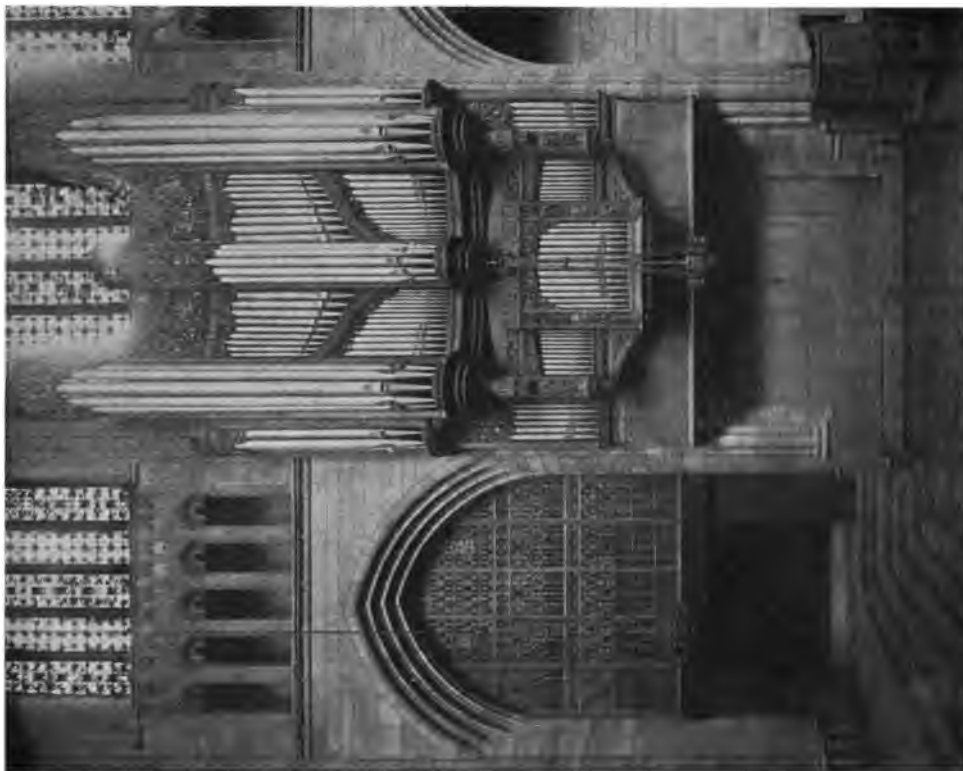
CHAPEL OF THE INTERCESSION.
Broadway Elevation. Bertram Grosvenor Goodhue,
Builders: Howard Hager Company. Cram, Goodhue & Ferguson, Architects.
Roofing Slate: The Matthews Slate Co.



CHAPEL OF THE INTERCESSION, TRINITY PARISH, BROADWAY AND 150TH STREET, NEW YORK,
 Builders: Howard Hager Company.
 Roofing Slate: The Mathews Slate Co.
 Rolling Partitions: Jas. G. Wilson Mfg. Co.
 Cram, Goodhue & Ferguson, Architects.
 Bertram Grosvenor Goodhue.



Leaded Glass Windows: Heinigke & Bowen.
Carved Wood Organ Case and Screens: Irving & Casson.



SAINT THOMAS'S CHURCH, NEW YORK.

Cram, Goodhue & Ferguson, Architects.



SAINT THOMAS'S CHURCH, NEW YORK.

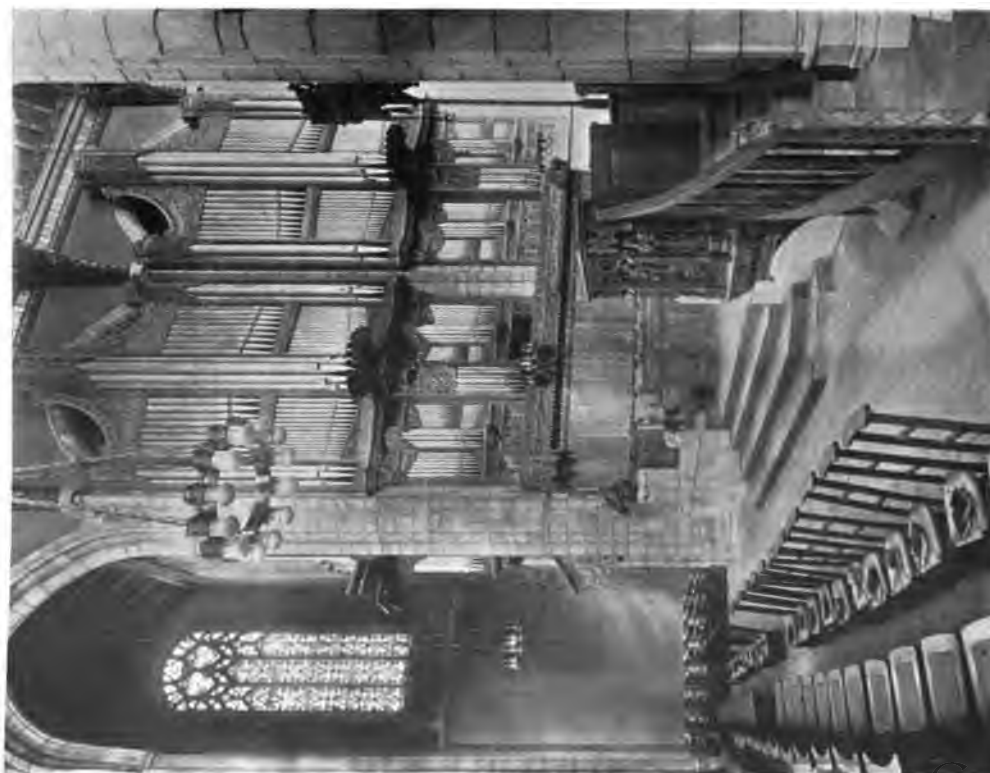
Leaded Glass Windows: Heinigke & Bowen.
Bulletin Board: U. S. Changeable Sign Co.
Carved Woodwork: Irving & Casson.

Cram, Goodhue & Ferguson. Architects.



CHAPEL OF THE INTERCESSION, NEW YORK.

Bertram Grosvenor Goodhue,
Cram, Goodhue & Ferguson, Architects.



Carved Wood Organ Case: Irving & Casson.



CHAPEL OF THE INTERCESSION, NEW YORK.

Builders: Howard Hager Company.

Ornamental and Plain Plaster: Davis Brown, Inc.

Carved Wood Choir Stalls and Screens: Irving & Casson.

Bertram Grosvenor Goodhue,
Cram, Goodhue & Ferguson, Architects.



CHURCH OF THE QUEEN OF ALL SAINTS.
Ornamental Iron: Hebbard & Wenz. Reiley & Steinbach, Architects.



THE BROADWAY PRESBYTERIAN CHURCH AT 114TH STREET, NEW YORK.

Builders: Amsterdam Building Co.
 Evans' Patent "Crescent" Expansion Bolts.
 Painting and Decorating: Mayer Daxe & Co., Inc.

L. E. Jallade, Architect.



THE VESTIBULE.



BRONZE GATES TO CHANCEL, MADE BY THE GORHAM CO., CHURCH OF THE QUEEN
OF ALL SAINTS.

Reiley & Steinbach, Architects.



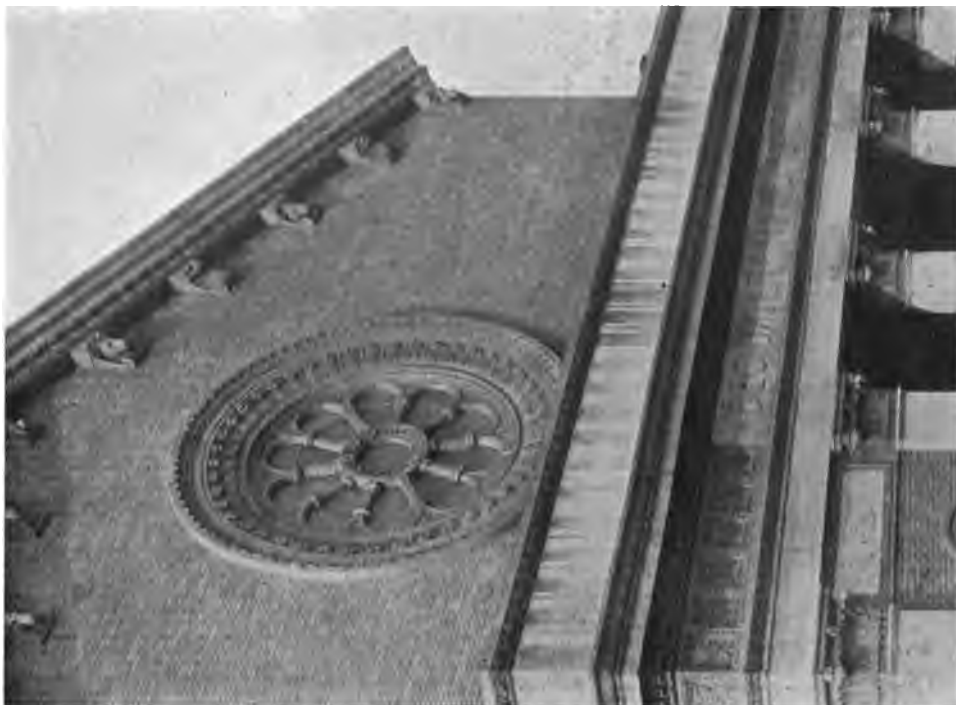
ALTAR IN THE CHURCH OF THE QUEEN OF ALL SAINTS.
Bronze Gates: The Gorham Co. Reiley & Steinbach, Architects.



THE FORT WASHINGTON PRESBYTERIAN CHURCH, NEW YORK.
 Builders: C. T. Wills, Inc.
 Thomas Hastings, Architect.



SAINT PATRICK'S CHURCH, PHILADELPHIA, PA.
 Architectural Terra Cotta: Federal Terra Cotta Co.
 La Farge & Morris, Architects.



La Farge & Morris, Architects.



SAINT PATRICK'S CHURCH, PHILADELPHIA, PA.

Architectural Terra Cotta: Federal Terra Cotta Co.



THE FORT WASHINGTON PRESBYTERIAN CHURCH, 174TH STREET AND WADSWORTH AVENUE, NEW YORK.

Electrical Contractors: Albin Gustafson Co.
Partitions: Sectionfold Partition Co.
Dumbwaiter: Chelsea Elevator Co.
Painting and Decorating: Sherwin & Berman, Inc.

Thomas Hastings, Architect.

Department of Fireproofing and Fire-Prevention

With the resignation of Mr. George H. Stewart from the staff of *Architecture and Building*, the substance of the Fireproofing Department this month is necessarily curtailed. However, arrangements are being made to have the Department conducted under the guidance of a competent writer, and it is purposed to increase and enlarge the scope of the department to give a more complete review than heretofore of the current developments in connection with the subject.

Forest Fire Fighting Conference The recent conference which was attended by representatives from all the New England States, New York, New Jersey, Pennsylvania, Virginia, West Virginia, North Carolina, Ohio, Michigan, Minnesota, Oregon and Washington, has just been reported. The meeting discussed the section of the Weeks law which authorizes co-operation between the federal government and the states in protecting from fire, forests situated on the water sheds of navigable streams. Discussion of patrol work in co-operation with private owners of timber land and other protective agencies and the railroads, brought out the fact that there is great

advantage gained from fire outlook stations and towers, and also that there is a great necessity for proper telephone communication as well as permanently established roads and trails. It was shown that, by full co-operation, all the interests working on a concerted plan, the total expense could be considerably reduced. Also in the case of actual fire fighting, the advantage of a trained and organized fire fighting force was emphasized.

Compulsory Sprinklers. A recent decision has been handed down by the Appellate Division of the Supreme Court in the case of the people vs. Kaye.

This, according to Fire Commissioner Adamson, is of utmost importance to the fire prevention bureau. The decision upholds the power of the fire commission to issue orders for the installation of automatic sprinklers. Awaiting this decision many orders have been held up and work will be commenced now in many buildings. The power is given to the Fire Commissioner to proceed against owners who refuse to comply with orders to install sprinklers, and it will be possible to bring suit to recover damages for the cost of fires in such unprotected premises and for any injury to firemen.



SUNDAY SCHOOL ROOM IN FORT WASHINGTON PRESBYTERIAN CHURCH.

Partitions: Sectionfold Partition Co.
Painting and Decorating: Sherwin & Berman, Inc.

THE LORD & TAYLOR BUILDING

By CHARLES WARREN HASTINGS

ON Fifth Avenue, with frontages on 38th and 39th Streets, the new store for the firm of Lord & Taylor presents the latest development of a building specialized to meet the demands of a large department store. The Fifth Avenue frontage is 150 feet, that on 38th Street, 260 feet, and that on 39th Street, 160 feet, the Fifth Avenue corner of 39th Street being occupied by the new building for A. A. Vantine & Co. with a site 50 by 100 feet.

In general, the Lord & Taylor building consists of ten stories above the street, with a first and second basement. The total floor space measures more than 600,000 square feet. In plan the building is laid out in a system of regular bays, the column spacing being a little over 22 feet centre to centre, eight rows across and eleven rows deep. There are seven enclosed fireproof stairways and twenty Standard plunger passenger elevators, with various freight elevators, dumb-waiters and package chutes in addition.

The stairs are of iron with stone treads and are enclosed in stair towers shut off from the open floors by single

fireproof doors, the location of which is indicated in each case by a red light. There are two stair wells on the 38th Street side in independent towers. At the rear of the building there are three stair wells, one in each corner of the building opening to each street, and the other coming down in the centre of the back wall and opening upon the main floor of the store through a wide and ornamental flight. The two other stairways are placed one on the 39th Street side in the corner nearest Fifth Avenue, and the other on the Fifth Avenue front in the corner nearest 39th Street. The passenger elevators are divided into four groups, two groups of five each, against the rear wall of the store to either side of the central stairway, and two groups, one of four and one of six cars, against the walls which adjoin the Vantine building.

The use of wood is confined to the counters, fixtures and decorative paneling, with the exception of the fifth floor, which is provided with a fine parquet flooring for the better display of rugs and carpets. The building is equipped



THE FLOWER BALCONY DECORATED WITH ROOKWOOD TILING.

with an automatic sprinkler system. On many floors this is of the concealed pipe type.

The power plant of the building generates electric current for all power purposes and lighting. A ventilating system is installed in the lower stories which is calculated to give a change of air every seven minutes.

Among the most unusual innovations in the new store is the equipment provided for the show windows. The floors of these windows are controlled by Standard plunger lifts so that the whole display in the window may be lowered into the basement, where a new display already made up may be shifted into place and raised into the window within a few minutes, thus making possible rapid changes of display for the windows, and doing away with the hours of disuse necessitated by the usual window dressing. In addition, a handsomely designed show window is located below the floor of the entrance loggia, and after the store is closed this is raised into place, closing the entrance with a handsome display. The architectural treatment of the show window backgrounds is in Caen stone with ornament in the Adam style. The lighting effects have been carefully

studied, the illumination being diffused from top and bottom reflectors for which color screens and dimmers are provided to produce a wide range of varied effects.

The main floor of the store is of highly ornamental architectural treatment, being finished in Travertine stone. The effect of this material in the floors, columns, walls and ceiling arches is a warm buff tint which gives proper relief to the high mahogany wainscoting, counters and show cases which are ornamented with a delicate ebony inlay. The Travertine flooring has a Numidian marble border and base about the walls, columns and all permanent store fixtures. Finally, the lighting, which is of semi-indirect type, gives a very evenly diffused illumination which is thoroughly satisfactory for the display of merchandise and pleasing and restful to the eye. For studying this lighting effect four bays of the ground floor were modeled full size and set up in the 69th Regiment Armory for experimental purposes. Here the architects solved the problem of lighting and proper color tone.

With the exception of the men's barber shop, the basement is utilized for packing and delivery of merchandise. Service for the main floor is provided



A FIFTH AVENUE WINDOW.



LORD AND TAYLOR STORE, DETAIL OF 38TH STREET CORNER.

Terra Cotta: New York Architectural Terra Cotta Co.
Electrical Contractors: J. Livingston & Co., Inc.

Starrett & Van Vleck, Architects.

for by means of dumbwaiters behind the counters which lead to the packing room whence packages are returned to the customers by the same means. For such packages as are to be delivered, a moving belt leads from the packing room direct to the delivery room to which packages from all parts of the building are delivered by means of freight elevators, package chutes, etc. City delivery is made by automobile, for which purpose there are 125 cars. At the rear of the building, extending from each street, there are inclined connecting driveways which lead to the delivery department in the basement. By this means the streets are cleared of the delivery wagons, a most welcome improvement in connection with a department store. All goods are shipped and delivered in this manner, and space is also provided in the basement for the storage of the automobiles. The charging of the electrics is accomplished here at night, thus constantly utilizing the power plant, an economic feature. New goods arriving at the store

come in at these same delivery entrances and are taken at once by means of freight elevators and carriers to the eighth floor which is the clearing house of the establishment. Here all arriving merchandise is checked and priced and labelled for distribution to the various sales departments.

It is unnecessary to describe the various floor arrangements, but, architecturally, there are several points of more than usual interest. Passing from the first floor with its highly architectural treatment by means of the grand staircase at the rear, one may enter the balcony mezzanine which is equipped with refrigerators in highly ornamental cases of Rookwood pottery. This is the cut flower department and is a most attractive spot. The elevator cars are handsomely decorated in Adam style, and the French salon on the fourth floor for the display of models is worthy of a visit. This room is provided with a series of scenic backgrounds, painted by George Bridgeman and set by William Camph,



THE LORD AND TAYLOR STORE, 38TH STREET AND FIFTH AVENUE, NEW YORK.

Builders: E. Brooks & Co., Inc.
 Terra Cotta: New York Architectural Terra Cotta Co.
 Electrical Contractors: J. Livingston & Co., Inc.
 Elevators: The Standard Plunger Elevator Co.
 Kalamein Doors and Trim: Reliance Fireproof Door Co.
 Evans, Patent "Crescent" Expansion Bolts.
 Plumbing: W. G. Cornell Co.
 Switch and Panel Boards: Metropolitan Electric Mfg. Co.
 Special Mixing Faucets: Murray & Sorensen.

Starrett & Van Vleck, Architects.

Waterproofing: Integral Waterproofing Co.
 Electric Carriage Call: The Woodruff Mfg. Co., Inc.
 Vault Lights: Brooklyn Vault Light Co.
 Loomis-Manning Filters.
 Chicago Spring Butts.
 Barrett Roofing Materials Used.
 "Peelle" Counterbalanced Elevator Door.



THE WINDOW WHICH RISES INTO THE FIFTH AVENUE ENTRANCE.

Standard Plunger Window Lifts.
Star Expansion Bolts.

Starrett & Van Vleck, Architects.

which are intended to harmonize with the various costumes shown. The concert hall, with its magnificent organ, and, in fact, the whole finish of the seventh floor, is well studied architecturally.

Upon the tenth floor 15,000 square feet of floor space is given up to dining rooms. There is a very handsome elevator foyer or lobby which leads to several restaurants decorated in Adam style with Wedgewood medallions. The Mandarin room takes its name from the Chinese decoration.

The signal system used in connection with the elevators is of a new type, consisting of a circular indicating dial set flush in the wall which shows by means of an arrow the location of each car. As a car approaches a given floor the face of the dial is illuminated with a red light for ascending cars and a white light for descending cars, thus giving the necessary information to passengers at all times.

The impression gained by visiting the store is of a building rather richly treated

for a department store. However, a closer inspection reveals the fact that no utilitarian point of service or equipment has been sacrificed to ornament or to architectural or artistic effects. The building is essentially the working equipment of a modern merchandising establishment which must meet a keen competition, and economies of service have been studied to the fullest degree. The advertising value of ornament and attractive equipment and display have been fully realized, both by the owners and the architects, and architectural adornment has been made to serve its purpose efficiently and without waste. The building is well constructed, and good material and workmanship are evident.

Starrett & Van Vleck were the architects. E. Brooks & Company, Inc., built the building. The architectural terra cotta was made by the New York Architectural Terra Cotta Company, and for the roofing Barrett materials were used over con-

crete. Kalamein doors and trim throughout the structure were supplied by the Reliance Fireproof Door Company.

J. Livingston & Company, Inc., were the electrical contractors. Switchboard, panel boards and detachable mechanism, flush switches and receptacles were made by the Metropolitan Electric Manufacturing Company. The Woodruff electric carriage calls are installed at each of the side street entrances.

As mentioned before, full size model bays were erected to study the lighting, the modeling being done by William Camph. For the semi-indirect fixtures special glassware was procured which is known as "Albedoglas" and "Camia"

glass, having special qualities of absorption in use with nitrogen-tungsten lamps. This glassware was made by the Gleason-Tiebout Glass Co.

The entire substructure is waterproofed by the use of about 100,000 pounds of "Integral" waterproofing material, which was mixed with the Portland cement at the cement mill. These bags were marked for identification, and the material was used in the same manner as ordinary plain cement in concrete work. When the forms for the work were removed, the waterproofing and the concrete work were simultaneously completed. Brooklyn vault lights are employed over the basement vaults.



THE FLOWER BALCONY AND STAIRWAY FROM THE REAR OF THE MAIN FLOOR.
Kalamein Doors and Trim: Reliance Fireproof Door Co. Starrett & Van Vleck, Architects.
Painting: The Barker Painting Co.
Travertine Stone: Davis Brown, Inc.

The W. G. Cornell Company were the plumbing contractors. The Loomis-Manning filters are used in connection with the water supply. Murray & Sorensen furnished special mixing valves for the wash basins.

The Travertine stone work of the first and second stories and most of the ornamental and plain plaster was done by Davis Brown, Inc. The painting was done by the Barker Painting Company. The James G. Wilson Manufacturing

Company furnished the inside Venetian blinds throughout. The wood floorings and wood mosaic floorings were laid by John H. Boynton. The interior woodwork was done by the Batavia & New York Woodworking Co.

In the restaurant the chairs and tables were furnished by Thonet Brothers, and the G. D. A. Limoges china, which is as fine a service as can be found in any restaurant, was made by the Haviland & Abbot Company.



THE UPHOLSTERY DEPARTMENT ON THE 5TH FLOOR.

Venetian Blinds: Jas. G. Wilson Mfg. Co.

Wood Floors: John H. Boynton.

"Camia" Glass in Lighting Fixtures.



THE MAIN FLOOR OF THE LORD & TAYLOR STORE.

<p>Builders: E. Brooks & Co., Inc. Electrical Contractors: J. Livingston & Co., Inc. Standard Passenger Elevators: Painting: The Barker Painting Co. Travertine Stone: Davis Brown, Inc.</p>	<p>Interior Woodwork: Batavia and New York Woodworking Co. Wood Floors: John H. Boynton. Albedoglas Lighting Glassware: Gleason-Tiebout Glass Co.</p>	<p>Starrett & Van Vleck, Architects.</p>
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THE "LOGGIA" RESTAURANT,



THE MANDARIN ROOM, 10TH FLOOR.

G. D. A. Limoges China, made by Haviland & Abbott Co.
Thonet Chairs and Tables.
Wood Floors: John H. Boynton.

Starrett & Van Vleck, Architects.



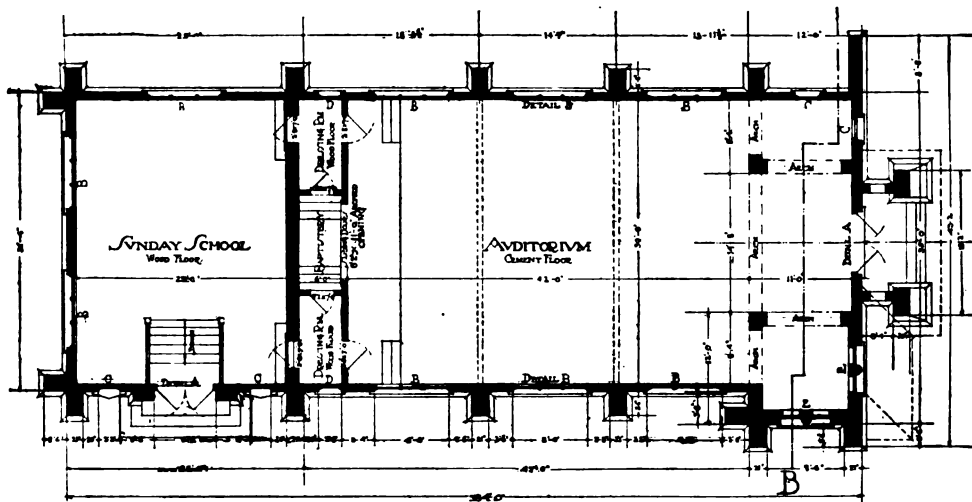
THE RESTAURANT, 10TH FLOOR.



THE FRENCH SALON, 4TH FLOOR.

Builders: E. Brooks & Co., Inc.
 Painting: The Barker Painting Co.
 Scenic Equipment: William Camph.
 Ornamental and Plain Plaster: Davis Brown, Inc.
 "Camia" Glass in Lighting Fixtures.

Starrett & Van Vleck, Architects.



BAPTIST CHURCH AT CAUGUAS, PORTO RICO.

A. Neekodoma, Architect.

PROGRESSIVE ARCHITECTURAL CONSTRUCTION

By FREDERICK SQUIRES

Plate III. Sand Moulded Concrete Ceilings and Monolithic Columns.

LET us suppose that a square span of floor thirty feet between supports is the subject of design. The architect and engineer confer. The architect thinks that two-foot coffers would about fulfill his requirements as to scale in the room whose ceiling is to be elaborated. The engineer figures the thickness of his slab, the amount of his steel, and the depth and contour of his beam. Then the architect takes the engineering sketches and lays out his fixed outlines. His art then moulds and refines and elaborates them and produces a design, true to its proper work and true as well to its right relation to height of ceiling and the scale of other design and decoration.

The drawings show a line of vertical supports secured to cross-girders supporting in turn small and widely-spaced timbers, running in parallel horizontal lines. On these rest the palettes with their load of moulding sand. The matrix for shaping the sand is shown below, made from the architect's drawing. Into it is heaped the damp moulding sand which is tamped to sufficient density with a sand bag. When the matrix is full of close-packed sand, it is levelled off and covered with a flat board palette, overturned and freed from the sand by jarring. On the palette then is a mould of sand reproducing in negative every outline of the matrix. Palette and all are placed upon the wooden form work and the whole surface is covered with duplicates made in the same way, producing an effect the reverse of the ceiling which is to be moulded.

Then comes concreting. There should be provision for placing all the concrete quickly. Preferably it should be made at the same level, or above the floor in question and spouted to it. Care must be taken to direct the stream in the hollows rather than on the moulds themselves, letting the concrete flow up over them.

After the concrete has set, the forms are soon removed. First are taken down the verticals, the girders and cross-pieces following, and some of the sand comes down with the palettes. The adhering sand is left to dry and then brushed out with a coarse brush, leaving a perfect reproduction of the outlines of the architect's design around the profiles of an engineering layout.

The supports of the ceiling shown in the detail are poured concrete columns, shown on one side with the plaster forms in place and on the other after their removal. The photograph shows a series of such columns which have been successfully cast in a single mould, the process of which is as follows:

The column is full-sized in the architect's office and the profiles sent to any ornamental plasterer who makes the moulds for the square members separately. The forms for the round members are readily constructed.

A pole, a little longer than the column, is secured at its ends in such a way that it may be revolved. In the meantime, a board has been cut to the profile of the column shaft and the round mouldings and, in fine work, this has been protected with a metal templet cut to the reverse of the column profile and set at the proper distance to outline the column, the pole acting as an axis. On the revolving pole is built up a mass of plaster work, and the plaster work, as it is added, is shaved by the templet to the accurate outline of the finished column. The result is a plaster column identical with the concrete column to be cast.

This plaster column is the core for the final moulds. The plaster forms for subsequent columns are then made. The core is greased or varnished and provided with outstanding metal strips parallel to its length, in order to divide the subsequent casting into three vertical sections,



THE KIND OF COLUMN MOULD USED.

one of which is itself sub-divided into a convenient number of horizontal pieces. Over the whole core is spread a layer of clay to provide, when removed, a space of two or three inches between an outer shell of plaster and the plaster column. The clay is surrounded with a rough jacket of plaster, the clay is then removed, and plaster for the final forms is poured into the circular opening between the outer shell and the core. This final form is reinforced in any desired manner with wood, metal or burlap.

The resulting cast will consist of two single vertical sections and a third section made up of two or more vertical pieces. These are attached to the top and may be used to cast columns in place or in the shop. The forms are set up and wired together, the upper pieces of the divided form being omitted and the whole is wired up and guyed. Into this form is poured a very liquid mixture of sand and cement so constituted as to give the proper color to the column when completed. A mixture of coarse concrete has been prepared which is then carefully

dumped into the center of the form, causing the liquid mixture to raise up around the outer perimeter of the column itself, surrounding the coarser stuff. When the coarse mixture has been put in in quantities which cause it to show above the top of the liquid in the form, more of the liquid is added, usually to a depth of about two feet, and the process is repeated. When the concrete has risen to the top of the first section of the divided form, the second piece is wired in place and the operation repeated until the column is entirely cast. After the concrete is set the wires are removed, the forms taken off and set up for a new column. The columns so made are set up in their proper places in the building, or preferably have been cast in place. If the length of time is sufficient so that they don't hinder the building operation, this latter is much the better method.

Architecture is the art of telling structural truth, and making of the naked truth an object good to see. Nowhere is structural truth more naked than in a concrete slab and column, and in no way that I know can these structural outlines and surfaces be more beautifully elaborated and displayed than in sand-moulded ceilings and monolithic columns.



MONOLITHIC CONCRETE COLUMNS.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

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Buildings are like clothes; they are made to fit individual people; they are made to be worn out. At second hand their value actually shrinks more quickly than that of the motor cars that the political economists were so solicitous about recently. At the same time the cost of a building is relatively, or, as we may say, per unit, the highest that any necessity, as distinguished from a luxury, has attained in this or any other country. In the great cities of America building costs have advanced to heights that are almost stupendous. The idea can be easily comprehended by anyone who takes the trouble to study the bulletins of the U. S. Department of Labor as they relate to the wages in the building trades.

In the bulletin of the Department, dated August 15, 1913, we find that there are only two classes of labor in the building and allied trades in New York City that get less than $37\frac{1}{2}$ cents per hour, and these might really be said to have very little to do with building proper. An interesting fact is that the only contractors in New York who still wear diamonds are the ones who employ a trade whose wages in 1912 (last year reported) were $22\frac{1}{2}$ cents per hour. I will not tell you which trade this is. Get a bulletin and find out, and note the interesting fact that when wages get into the simonpure building line and mount to $37\frac{1}{2}$ cents per hour and up, the employers are, in these competitive days, on the ragged edge of despair.

The fact that some men wear clothing that costs five times as much as the average man spends or can spend for the same thing—and that fair ladies sometimes wear on their backs finery worth enough dollars to pay for clothes for a whole village for a year—finds its parallel in the housing of the same people. But, as far as I can observe, the follies of the rich with respect to their clothing do not affect at all the industry of making and selling the garments of the Democracy.

Buildings are like clothes, but building is different from tailoring. All buildings, in New York City for instance, are built or supposed to be built on the same wage scale and the same system as that which is

employed by the rich man. I have heard stories lately about rebates paid by union workmen, rebates returned to their employers after the employee has left the pay window. I have heard stories of how some mechanics in certain trades work away below the union scale and still keep their cards. May be the reports are true. May be nature is thus taking further steps to right an economical wrong. But New York is a union town, non-unionism has no foothold in it. *Hinc illae lachrymae.*

But when it comes to building for profit or investment, the very same man who did not hesitate to pay ten thousand dollars for a rug, (that was properly introduced) will bring to bear his business shrewdness to reduce the cost of the warehouse or factory or office building which he may happen to be building. And then, as my friend William says, "Good night."

Union wages in a union town are the nether millstone, made of the hardest flint, above which turns the upper millstone, equally hard and unyielding, in the shape of the business-like owner; in between is the unhappy contractor. Sometimes the architect gets ground up, too, but if he is wise he rides the upper stone in comparative safety. Unhappy contractor, who used to figure the volume of his business from the rate of wages that he was paying to his workmen,—who tries to figure it that way now but finds that competition will not stand for any such arrangement.

The building business is different from any other that I know of, in the fact that there has never been any power or disposition anywhere within its midst to resist advancing wages. Building seems to have been an industry without responsibility, and responsibility is, from some points of view, the greatest thing in the world.

Some day some philosopher will take this for his theme and prove that it isn't Love, but that sterner, colder, less disappointing thing, Responsibility, that makes the world go 'round. Some day I may find that there is an audience that would care to have me demonstrate this matter of responsibility, and the lack of it, in the building business. Until that time I propose that we leave alone the tiresome subject of builders granting high wages to their men because they supposed somebody else had to pay them.

No one who knows envies the workmen of the building industry the wages they get. It is pretty well understood by this time among those that know that Nature adjusts high wages just as she adjusts other things. Meaning by this that if Nature finds that wages keep going up in spite of her rule that they should fluctuate with the law of supply and demand she cares not one whit but reduces the amount of work for those who insist on the high rate, and thereby brings things to an equilibrium. In other words, the higher the wages the less the work for the wage earner to do.

But there are lots of people who don't know, and, besides, those unhappy builders have to pay the price for their irresponsibility. You notice I say builders now. It was as builders they agreed to the wage-

scale. It is as contractors, later in the game, that they have to pay them.

Building costs too much. Business men—this is a business country—know it; and they employ the agencies which their acumen enables them to muster so easily to cut the cost down.

New York City has lately been going through the "Slough of Despond," as far as building is concerned. Too little work; too many to do it. Men who used to be bosses are now reduced to journey work. Foremen are reduced to the ranks for the time being. I know of one building on which there were employed some eighty men in a certain trade during the past winter. Eighty men is a large gang in that trade, by the way. No less than eighteen of those journeymen were foremen of credit and renown, men who knew how to direct their line of work and had done so on some of the most important buildings in the country. Yet the wages in their trade went up a certain number of cents per hour on the first day of January last on the strength of an agreement made with the employers in the trade two years before. What do you think of that for flying in the face of Political Economy?

And what are the employers in this trade getting? Do you think they are making ten per cent. on those wages? That's the theory of it. But that isn't the practice. No, it is a case of "from him that hath not shall be taken even that which he hath." I quote the Testament literally because it has more force than to say "*that which he seemeth to have.*"

These business men do it. They don't trust the architect to trim the contractors. No, no. They hire a lawyer or an agent, or, what is just as easy, they let the contractors Kilkenny-cat each other to destruction, regardless oftentimes of the protests of the architects who see the prospect of spoiling the work through too low prices.

As I am writing these words I have just come from a talk with an intelligent young man, now an employer, who told of a shop in which the workmen were making 32½ cents an hour. It was in the metropolitan district, where the cost of living is high, as you have probably heard; but it was NOT the building business. This employer who at the time had been a mechanic himself—a foreman—said that the wages were fine, that everybody was prosperous and happy, but a walking delegate got among them and the men struck and—the concern discharged everybody and **QUIT THE BUSINESS.**

"And served those fellows right, too," said my informant. He is a workman himself and ought to be a judge.

I wondered if those 32½-cent men struck because they heard that common laborers in the building business got more.

Theodore Starrett.

ARCHITECTONICS



The description of a registered colt reads something like this: "Stamboul, by Racine, out of Mater." "Specifications, by Law, out of Experience" would describe our title in the parlance of horse-sense. The perfect specification would be the sum-total of three lectures to a visitor from Mars on "How to Properly Construct a House" by an earnest artist, a careful builder and a shrewd attorney.

At present the object is to get it all your own way, so that, taken in connection with the "Uniform Contract," by no possible contingency can the "Party of the Second Part" have any chance at all. So the specification tries hard to be legal and just as hard to be inclusive, and when it is the result of real legal advice and real building experience I have no doubt that it is as efficient as its sound is formidable. But as it is usually done, it is merely verbose and contradictory. Like the time and forfeit clauses in the contract, much of the specifications cannot be enforced. A great deal of it is in the nature of a blanket and horse and man know how hard it is to keep a blanket on, especially when it is needed. Moreover, the architect

writes his specifications and often lets the contractor tell him just what they really mean. On the other hand, I've known strong men to let enormous contracts on next to no specifications at all and through the force of their own personalities require an excellent observance of the principles of good construction. My uncle, General Thumtack, let a famous contract on the second federal dam at Rutland. "This dam is to be built like the first dam only a damn sight better." He drove the job through with the mailed fist and when he wanted anything done his own way he fell back on that "only-better" clause. It was his general conditions, his general description, his uniform contract, his bond and forfeit. He was accustomed to command and have his commands obeyed and *sum ego lex* seemed specification and contract enough for him.



My office boy was going to build a pigeon-cote by contract and our whole office helped him write the specification. It was thirty-three pages long, a veritable masterpiece, and every word applied definitely to the building of that pigeon-cote. It began with our regular general conditions, three printed pages of them. Next came several pages of general description; then masonry, carpentry, sheet metal, roofing, painting, glazing, and all the others, each with all possible flourishes. The contract was a corker; parties of all the parts, whereas, hereinafter, aforesaid, bond, bonus and forfeit, red seals and witnesses. Gus sent it to Iver Iversen and back it came in due time, duly signed on each page, executed, sealed and delivered. After the second generation of pigeons had had time to take their customary nourishment out of their mothers' open mouths, Iver came into the office one day. The boys remembered the specification on which the office had prided itself as being by far the most splendidly complex, verbose, involved and legal that they had ever perpetrated. Accordingly they asked Iver how he liked it. "Spasificash ban gran tick," spake Iver. "But ah bean't a reader." Nor a writer either,

it seemed, for Iver's boy had signed the contract. Iver claimed to have been building for years, under "gran tick" contracts and specifications and had never been troubled by the fact that he couldn't read a word of them.

We use the card system in the office. So much of every specification is common to all and so many materials are specified year after year in exactly the same manner that our specification-writer simply makes notes from his index and the stenographers find the cards to which they refer, and copy them. Only the special instructions are dictated. In rereading he seldom goes through the indexed paragraphs, leaving them to be checked by the stenographers who typed them. It is difficult to make mistakes by this scheme, but we let a curious contract once thereby. A retiring office boy had altered the key just before he left.



"The foundations shall be of concrete, mixed equal parts cow manure and loam, carefully raked level, and seeded with Henderson's 'Shady Lawn' grass seed." That house would have seemed to "grow right out of its environment," to quote the house building magazines. The same stenographer made another slip a few pages further along.

"The floors shall be well scratched and finished with a sand finish."

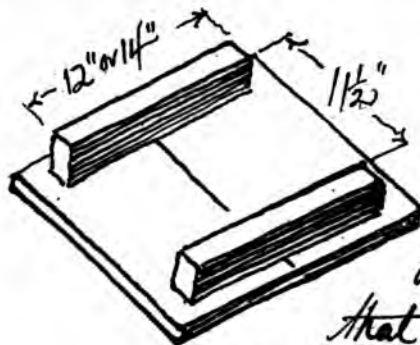
His revenge was even sweeter when the plumbing was reached. "The bath tubs shall be made by Tiffany of favril or translucent glass. They shall be according to the following list and shall be arranged to ring bells in the servants' quarters when any buttons are touched. The bath rooms for the owner and servants shall be cross-connected so that in winter only one need be used at the owner's option. The owner's bath tubs shall be plainly marked with a sign in red letters six inches high, 'To be used only in case of emergency.'"

"There shall be the following speaking tubes: from owner's bed

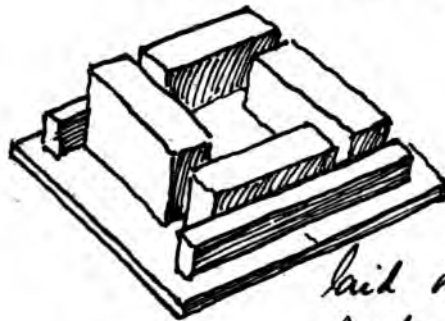
room to Trenton Potteries, Trenton, New Jersey; from servants' bed room to the Hudson Terminals, all cross-connected at owner's option. Intercommunicating telephones having stations at the following points: Sanitary Manufacturing Company, St. Louis, Missouri; J. L. Mott Company, New York City, and police headquarters." The successful contractor called our attention to the fact that he didn't get the meaning of all the specifications; but the job worked out all right because the owner had never read past the ninety-seventh clause of the general conditions and the contractor said he only asked for information and not in a spirit of carping criticism and that he had never pretended to understand Blackstone on Building. I remember a prominent lawyer's remark in reading the specifications for his house: "I get it all but the legal part." The builder got it all but the building part and so the office boy got left.

Specifications are the essence of things hoped for, the image of things not seen. A perfect specification writer should have graduated from Columbia Law School and Drummond's Detective Agency and then taken a course in palmistry to cover the unforeseen contingencies. He then should be fitted to sufficiently becloud the issue, and if the superintendent is a law unto himself the result will be the same as with the General's dam or Gus's pigeon-cote.

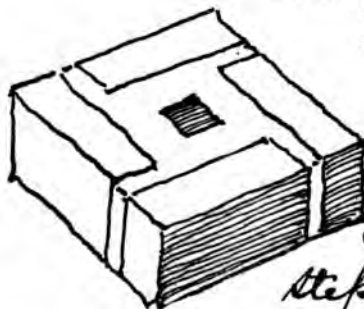




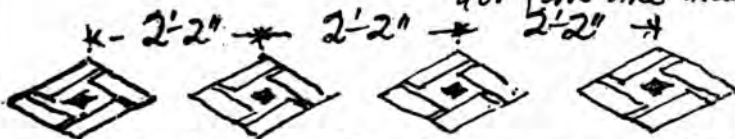
The form
that was used.



The bricks
laid in the form
ready to put in
the mortar.



A finished
stepping stone with
"dot" in the middle.



Stepping stones sunk in the grass about 26" apart.

JL



STEPPING STONES

By J. L.

WE used to take a gardener's magazine to teach us about planting and to give us ideas about fixing up around the yard. We do not take it any more. We found we didn't need to, for we discovered that the pictures were duplicated season after season and year after year. We had saved the files which fact led to the publisher's discomfiture—he has lost an appreciative as well as a valuable subscriber. Now when we want to know what to do in the month of April we simply get out any one of the April numbers and there it all is. There are the beautiful pictures of the flowers that bloom in the Spring—that part of the Spring—and there are the same old instructions about the digging to do in the Spring, tra la! Which has nothing to do with the case of stepping stones, you say.

Nay, not so. Did we not see in the magazine the pictures of the stepping stones? It must have been in the month of planting grass seed—whichever month that is. (I do not have to look up stepping stones now, because I am an expert myself and give out information about them instead of taking it in.)

Yes, I saw those two or three classic stepping stone pictures and thought how

beautiful stepping stones are. What a picture they make laid in a green lawn. Then I happened to see a stepping stone walk up in the Pocono Mountains and noticed how tight the grass grew around it.

I thought, why don't these folks with small back yards—and large ones, too—use more stepping stones? Why need they cut up their lawns with gravel walks? And why do they not put stepping stones around their flower beds, to stand on when they cultivate and trim and pluck? And why must they throw the stepping stones down so close together, as though they had been trying to make a stone walk and were too lazy—or too poor?

All these questions led to an experiment. I had seen an apartment building in New York which had the face bricks laid up in a pattern. There was a border around the entire facade in which were some dots, a kind of dark brown metallic blue in color, and square— $2\frac{1}{4}$ inches square as I afterwards found, because I bought some of these bricks, having found out the manufacturer who was supplying the building in question. I had been doing some brick work about the house—to be exact, I had bought Count Rum-

ford's book on Fireplaces and had revised our fireplace; rather, I should say, I metamorphosed it from a smoke place. The workmanship was not as fine as a New York bricklayer would do. But that is another story.

Having purchased a trowel for this fireplace job and having these bricks handy I made up a stepping stone. A crude job, indeed, from the bricklayer's point of view, but the bricks happened to have been well wet and the mortar "froze" to them, and the stone, such as it was, after lying around for a few days had become a stone, indeed. It clodded around the back yard for fully a week.

At that time we had just finished our new dining room which had a porch opening into the garden. I thought to myself, why not make the walk leading from this porch out of stepping stones? Accordingly I told the laborer who was at work fixing up the roadway

to make up forty of these stones. We had a mortar board upon which we nailed a couple of short strips forming a guide for the size of the finished stones. The drawing herewith gives an idea. Four bricks were laid in a square within these two guides, then the mortar was mixed very stiff and poured into the middle.

If anyone who reads this decides to try to make some stepping stones I would advise him, first, not to be discouraged at the idea that the mortar will flow out at the joints between the bricks. If the mortar is mixed stiff enough—that is, without too much water—it will be found very easy to stop it from flowing through these joints. Or, if you wish, you can make the strips high enough to be flush with the top of the bricks. You can also, if you want to go a little further, make strips to go on all four sides of the stone. It is

largely a matter of choice. If, however, you make the strips on all four sides you will have to arrange two of them at least to be movable, so that the stone can be taken from the form and set to one side to season while the form is used to make another stone.

The amateur bricklayer may understand, however, that the first stone of this im-

portant undertaking was made without any form at all, the mortar being poured into the midst of the four bricks as they lay on the mortar-board, and when the mortar started to flow through the joints the trowel was used to stop it. If you have a quick setting cement and if you mix it rich, say, one part cement to two parts sand, the mortar will start setting very quickly.

Some amateur bricklayers are tempted when doing a job like this to use their fingers to help the trowel. This is a trick I have seen real bricklayers use sometimes. But you should

be warned that the cement mortar will take the skin off your hands if you try it. Wear an old pair of gloves when you make your stepping stones.

I have not said a word about the "dots." When your stone, with the four bricks forming the border, has begun to set take one of the brick dots and gently but firmly push it down into the mortar which forms the center of the stone.

Our laborer made some forty of these stones in a day and a half. He used two forms like the one shown on the sketch herewith. One stone was made up and left to stand; then he made up the other one. When No. 2 stone was made up No. 1 had set sufficiently to allow him to take it up carefully by the corners, so as not to disturb the setting, and lay it to one side where it was left to stand until the cement had become hard—a matter of two or three days.



"I MADE UP A STEPPING STONE."

These forty stones had been finished and seasoning for at least a week when we were ready for the next step. The grass was now growing strong where the walk was to be made. I took a number of the stones and laid them down where I wanted the walk. They were just a step apart. I tested them before giving the word for the next operation. Being satisfied with their location I told the laborer to mark with his shovel blade the spot where each stone was, lift up the sod, dig a hole the depth of the stone and drop the stone into it. It took no time at all to finish the first stretch of this walk leading from the porch to the roadway. Afterwards, we ran another walk out through the flower bed. And that is as far as we have gone.

I consider these stepping stones of ours to be one of my greatest discoveries, and in giving them to the world, as I now do, without patent or copyright, I feel that I am entitled to at least a medal of honor. But I don't expect it. The world is not built that way.

Anyhow, we had a great deal of satisfaction out of them. They have caused lots of comment. When our neighbor up the hill—she who called our garage a

"shelter"—espied them peeping out of the grass she could not restrain her curiosity but rushed over to find out what it was all about. She said she had never seen anything like them. I don't believe she ever had. I know I never saw anything like them.

They have been out now for almost three years and look just as good as the day they were laid out. The grass has grown around them, and when we mow our lawn we mow right over them. We have found with almost three years' use that they are a sufficient walk for any one who will take the trouble to be careful. We are going to have some more of them and it may be that we will make them without the brick border, but we will use the dots in any event. When we have conquered our back yard and, like Alexander the Great, are sighing for more worlds to conquer we intend to invade the front yard. We intend

to plant a row of some kind of flowers or other along the front walls of the house. This flower bed will take up, say, 4 feet of room; then will come the lawn. Along the edge of this lawn will be a row of stepping stones. These we think will beautify the picture while at the same time they will be useful.



THE FIRST STRETCH LEADING FROM THE PORCH TO THE ROADWAY.

THE LOOSE-WILES BUILDING

A Reinforced Concrete Building in New York City

By WM. PHILLIPS COMSTOCK

IN the new section near the Queensboro Plaza, there has just been completed the great factory building for the Loose-Wiles Biscuit Company. It is a reinforced concrete building clad externally with white glazed terra cotta



ON APRIL 29TH THE FOUNDATIONS WERE IN PLACE.

upon the three street sides and its great mass makes it an imposing structure. In a sense it is not entirely reinforced concrete, for steel columns serve largely for its interior supporting members, but outside of these columns which do not extend above the fourth floor except in special cases, the building is truly a reinforced concrete structure. It is a great rectangle, 200 feet on one dimension and 430 feet on the other. It is ten stories high and rises nearly 150 feet above the ground, the first floor being approximately at ground level.

The foundations for the walls and column footings consist of a grillage of steel beams set in concrete which form spread footings upon groups of wooden piles driven to hardpan. There were 15,000 piles driven and 16,000 cubic yards of concrete used up to the underside of the basement floor. The outer wall supports are of reinforced concrete wall piers which are for the most part 5 feet on the face with a depth of 2 feet. Reinforced concrete spandrel beams extending from pier to pier frame the window openings and give the necessary support to the floor panels. For the first four stories all the interior columns are steel, built of plates and angles to

I-sections. These are protected with concrete. From the fifth floor up the interior columns are of reinforced concrete, built in the usual manner. There is an exception in one case, as those portions of the 7th floor which carry the ovens are specially supported by heavy steel columns carried up direct from the footings.

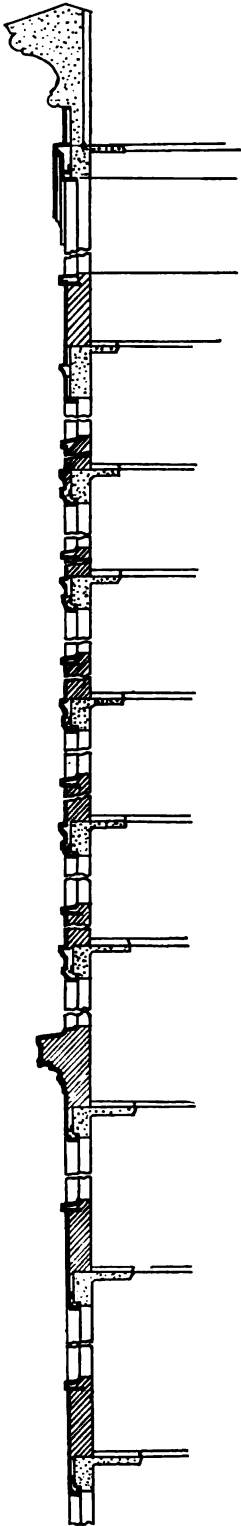
The column spacing ranges from 21 feet 2 inches to 26 feet, spaced on the longer dimension, the shorter span being the typical span. In the opposite direction the columns are spaced from 16 feet 4 inches to 18 feet 4 inches center to center, the shorter dimension being typical; thus the typical bay of the building is an area 16 feet 4 inches by 21 feet 2 inches, the typical girder is 16 feet 4 inches and the typical beam



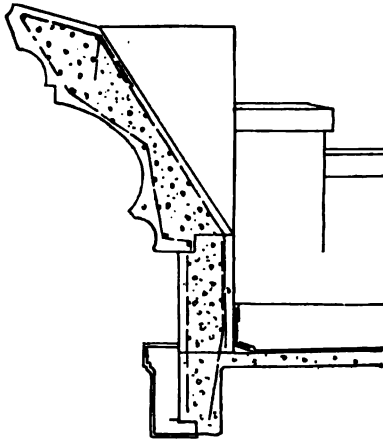
ON MAY 15TH MANY STEEL COLUMNS OF THE FIRST STORY WERE IN PLACE AND THE FORMS FOR THE WALL PIERS SET UP.

21 feet 2 inches. The depths of the girders vary from floor to floor and according to the load imposed, but for the most part the depth is between 2 and 3 feet, which includes the depth of the floor slab, which is most uniformly 4 inches. The width ranges from 1 to 2 feet, according to the load for the most part, although some of the reinforced concrete girders are as large as 3 feet 6 inches by 3 feet 6 inches in heavily loaded portions of the 7th floor.

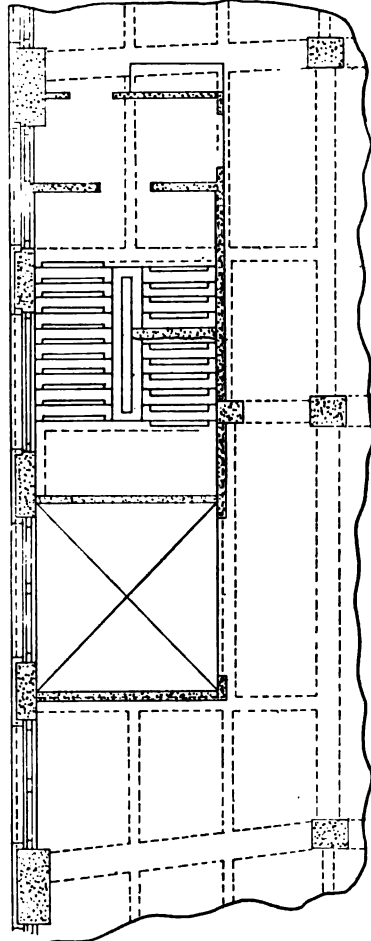
The beams which run parallel with the longer dimension of the building are



SECTION
THROUGH CUR-
TAIN WALL.



A SECTION OF THE REINFORCED
CONCRETE CORNICE. IT OVER
HANGS 3 FEET $3\frac{1}{4}$ INCHES.



TYPICAL STAIR HALL CONSTRUCTION, ENTIRELY OF REINFORCED
CONCRETE. THE WIDTH OF TREAD
IS 4 FEET $6\frac{1}{4}$ INCHES.

for the most part about 8 inches in width with depths of 2 feet 5 inches. Where the beams connect from column to column the reinforcement is slightly increased. Two beams span from girder to girder between columns, dividing the typical floor bay into three panels so that the span from center to center of the typical 4-inch floor slab is about 5 feet 5 inches.

The average live loads for the floors of the building range from 150 pounds to 500 pounds to the square foot. The floors provided under the ovens on the 7th floor, however, are figured for 2,000 pounds to the square foot. The finished flooring consists of maple laid on 3-inch yellow pine, tongued and grooved upon top of the concrete floor system. Several floors, however, have the usual granolithic finish on cinder fill instead of the maple.

The exterior curtain wall of the building is of white glazed terra cotta upon three sides, but the cornice above is of reinforced concrete. This cornice is reinforced for the most part with $\frac{1}{2}$ -inch longitudinal bars lapped about 2 feet at joints, with brackets made up of $\frac{3}{8}$ -inch bar bent to roughly follow the outline of the cornice, spaced about 2 feet 6 inches apart. At the corners, the cornice is specially reinforced with diagonal bars.

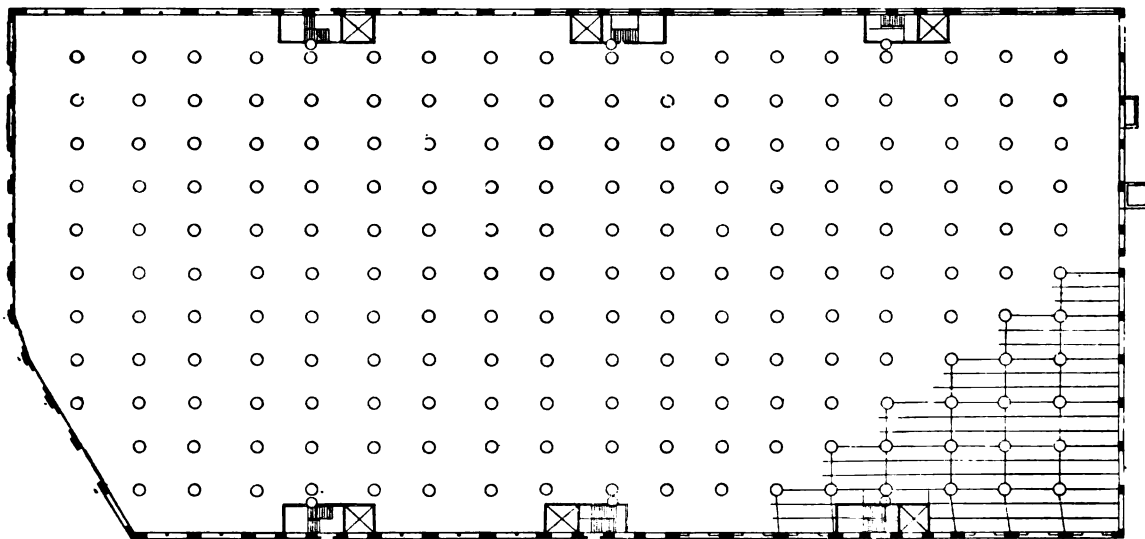
A story told by the pictures showing progressive views of the construction is the remarkable speed of erection. A 10-story building on a lot area of almost 83,000 square feet was erected, in $19\frac{1}{2}$ weeks after completion of the footings, at the rate of a story every $13\frac{8}{10}$ days.

The form work was so constructed as to be practically interchangeable for all floors except the seventh. As many beams and girders were figured at the same width, the provision for varying loads being an increase or reduction of the depth, the expense of changing the forms and the time in handling and setting them were greatly reduced.

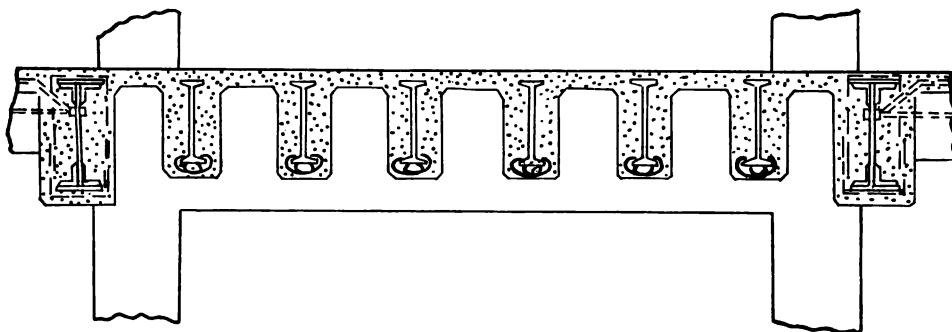
There are six interior enclosed stair towers, with each of which there is an elevator. In addition, at the center of the rear wall is an exterior fire tower. The stair towers are all built of reinforced concrete, including the stairways themselves. The risers are all provided with metal treads. Windows for the



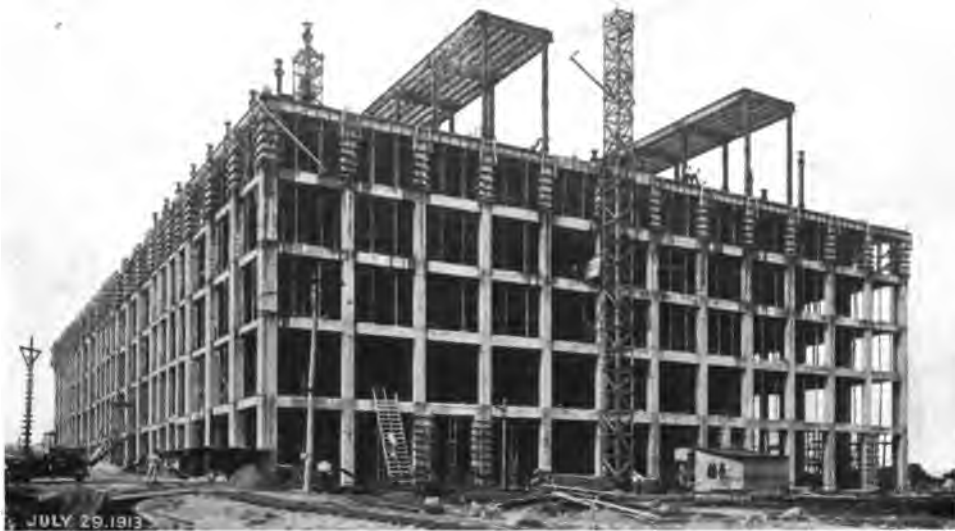
ON JUNE 28TH THE LARGEST PART OF THE STEEL WAS SET. IT IS UP TO THE LEVEL OF THE 4TH FLOOR.



First story plan. The girders run parallel to the short dimension and are typically spaced 16 feet 4 inches centre to centre. The beams run parallel to the long dimension spaced typically 21 feet 2 inches centre to centre. There are 6 interior stair towers and one exterior fire tower at the centre of the rear wall.



Typical section through the 7th floor under the ovens. The span from centre to centre of the columns is 16 feet 4 inches. The I-beams are 2 feet in depth. The floor system is carried by steel columns extending from the footings and the construction is figured to carry 2,000 pounds per square foot, the most heavily loaded portion of the building.



ON JULY 29TH HALF THE CONCRETE WORK WAS DONE. THE HEAVY STEEL SHOWN IS FOR THE SUPPORT OF THE OVENS ON THE 7TH FLOOR. THIS HEAVY CONSTRUCTION RUNS FROM ONE END OF THE BUILDING TO THE OTHER.



ON NOVEMBER 5TH THE FORMS FOR THE CORNICE WERE IN PLACE.



THE BUILDING FOR THE LOOSE-WILES BISCUIT CO. WAS COMPLETED IN DECEMBER.

Builders: Turner Construction Co.

Barrett Specification Roofing.

Knickerbocker Portland Cement Used.

Interior Woodwork: R. B. Ferguson.

Hollow Metal Windows, Skylights and Roofing: Herrmann & Grace Co.

Star Expansion Bolts.

Automatic Sprinkler Equipment: Automatic Sprinkler Co. of America.

Otis Elevators.

William Higginson, Architect.

most part are set in wood frames with the exception of certain portions adjacent to the stairway, where pivoted metal sash were employed.

The automatic sprinkler protection comprises a system extending throughout the building divided into six sections, according to the layout of the Manufacturers' Mutual Fire Insurance Company. There are cut-off valves permitting independent control of any of the six sections of the equipment on each floor. The total number of sprinkler heads is 8,600. The system is all wet pipe except through the refrigerator room, which contains 80 sprinkler heads upon a dry system. The air system is supplied by a steam-driven compressor.

The distributing water system connecting the several risers consists of approximately 700 feet of 6-inch pipe and 400 feet of 8-inch cast iron pipe. The water supplies consist of two 40,000-gallon cedar gravity tanks placed above the roof. These are supplied through a 3-inch pipe by a duplex Underwriter's fire pump with a capacity of 1,000 gallons per minute. There are also six siamese

steamer connections fitted with the thread of the local fire department, which gives an auxiliary supply to the sprinkler system.

There is an electrical alarm system run in metal conduit to signal when the sprinkler system goes into action. The entire equipment of the main building as well as the garage building, now under construction, was installed by the "Automatic" Sprinkler Company of America.

The architect of the building was William Higginson, and the Turner Construction Company had the general contract for the reinforced concrete work. Atlantic terra cotta was used for the curtain walls.

Knickerbocker Portland cement was used in the concrete. Fire windows and metal work such as skylights and roofing were contracted for by the Herrmann and Grace Company. There is a Barrett Specification Roof; R. B. Ferguson did the interior woodwork in the offices.

The Degnon Contracting Co. placed the foundations and Post & McCord set the structural steel work.



RESIDENCE OF MR. EDWARD D. PAGE, OAKLAND, PA.



THE WEST SIDE OF THE WALKER-LISPENARD BUILDING FOR THE AMERICAN TELEPHONE AND TELEGRAPH CO.

General Contractors: D. C. Weeks & Son. Eidlitz & McKenzie, } Associate Architects
 Bulletin Boards: U. S. Changeable Sign Co. Voorhees & Gmelin, }
 Hollow Metal Windows: S. H. Pomeroy Co., Inc. Henry C. Meyer, Jr., Consulting Mechanical Engineer.
 Evans' "Crescent" Expansion Bolts Used.
 Otis Elevators.
 Brooklyn Vault Lights.
 Clock System: Lockwood & A'mquist.



THE WALKER-LISPENARD BUILDING

A Building Specialized for Long Distance Telephone Service

By CHARLES WARREN HASTINGS

MANY buildings are built to fit the needs of certain specialized kinds of occupancy. The extent to which this specialization may be carried when the economics of service have been worked up to a very high standard is well shown by the now completed American Telephone and Telegraph Building which extends through from Walker to Lispénard Street, just west of Church Street, New York City. The plot has an area of 20,846 square feet. The total floor area of the

building is 297,000 square feet, and the available space for business purposes is 221,279 square feet. The building, having a total height of 268 feet, is seventeen stories high, with a pent house on the roof, and contains 5,392,000 cubic feet of contents. The structure has been so figured that it will be possible to add seven stories. The story height averages nearly 15 feet to the story, but is not uniform throughout, some stories considerably exceeding the average.



OPERATORS' REST ROOM.

The foundation consists of 35 caissons sunk to an approximate depth of 40 feet below the curb. Five of these are of large size, one being 38 feet 2 inches by 35 feet 4 inches, carrying a load of 8,104 tons, and one 38 feet 8 inches by 35 feet 3 inches carrying a load of 6,291 tons, being the largest caissons ever put down to carry the superstructure of a building. The superstructure is of the usual steel skeleton type with brick curtain walls ornamented with terra cotta. The floor arches are of terra cotta and all corridor and elevator partitions are of 8-inch terra cotta blocks. The floor surfaces are of cement overlaid with linoleum. All windows are double hung, the frames and sashes being of hollow metal glazed with wire glass and provided with fusible link automatic sash closing devices.

The trim throughout is of hollow steel and hollow steel doors are used. Fire walls separate the elevators so that there

are not more than three cars running in any one shaft.

There are two main stair wells, one in each wing of the building, which are separated from the elevator corridors by means of hollow-steel doors. In addition, in the west court there is an iron fire stair enclosed with wire screening. In the central court of the building there is an iron balcony at each floor, with an outward opening fire door from each story. This balcony runs along the sides of the court before the windows, and connects with a smoke and fireproof stair tower having no openings into the building directly, except into the main hall on the Walker Street side, which leads directly to the street. Thus there are in all four stairways available for emergency use in



ANOTHER VIEW IN AN OPERATORS' REST ROOM.

the building. The elevator equipment consists of two batteries of seven elevators each approached from the two street entrances. The elevators are of the 1 to 1 Otis traction type with a speed of 600 feet per minute, a maximum load of 3,300 pounds, and a capacity of 21 passengers. A signal board is provided in each elevator hallway which, by means of colored lamps, indicates the position of all cars in the shafts at all times.

Current for the building is supplied by the New York Edison Company, there being four separate services entering the building, three ordinary connections and the fourth a separate cable direct from the Duane Street power station which is an emergency breakdown service for the Western Union Telegraph Company. The power plant of the building consists of



LUNCH ROOM FOR OPERATORS.

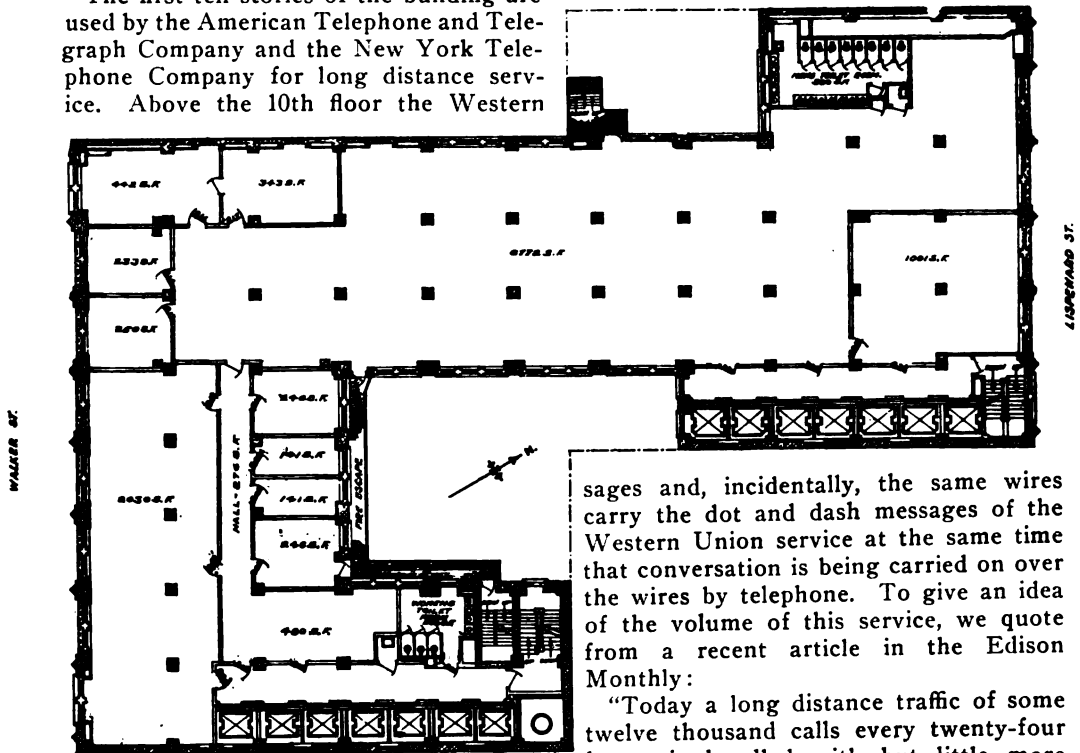


LONG DISTANCE SWITCHBOARD ROOM.

three 300 horsepower boilers which supply steam for heating and all other purposes, and also for a 100 kilowatt generator set which is a reserve supply in case of break down for the Western Union Telegraph Company. The lighting load for the building is approximately 200 kilowatts per hour and the power load approximately 900 kilowatts per hour.

The first ten stories of the building are used by the American Telephone and Telegraph Company and the New York Telephone Company for long distance service. Above the 10th floor the Western

Union Telegraph Company occupies the building. It is in the equipment of the varied departments, terminal rooms, operating rooms, and the large space set aside for the health and comfort of the large number of operators that the specialization in the equipment of the building is realized. The relation of department to department has been studied from the standpoint of economy and while ample space is provided for all switchboards and a sufficient ventilating system installed to provide for the comfort and health of the operators, floor area has nowhere been wasted, although provision has been made for further expansion in the service. There are about 500 toll lines entering New York City from other cities, all of which centre on the long distance board on the fifth floor of the building. Here, also, centre the 1,500 trunk lines connecting long distance service with the various local exchanges in Greater New York. The American Telephone and Telegraph Company operates the toll lines for the long distance mes-



PLAN OF THE EIGHTH STORY.

Furring and Lathing: Arthur Greenfield, Inc.
Star Expansion Bolts Used.
General Contractors: D. C. Weeks & Son.

sages and, incidentally, the same wires carry the dot and dash messages of the Western Union service at the same time that conversation is being carried on over the wires by telephone. To give an idea of the volume of this service, we quote from a recent article in the Edison Monthly:

"Today a long distance traffic of some twelve thousand calls every twenty-four hours is handled with but little more concern than so much local business. There are about 6,400 outgoing calls and

6,000 incoming calls divided among some 250 cities and towns on the long distance toll lines. Trenton, N. J., and Norwalk, Conn., are the nearest long distance points to New York, while the present outpost is Denver, Colo., two thousand miles away. Of New York's daily outgoing calls, fourteen hundred are to Philadelphia, six hundred to Boston, sixty calls of a thousand miles each are made to Chicago, and there are an average of ten each to Atlanta, Ga., and St. Louis, Mo., while Dallas, Tex., and New Orleans, La., not infrequently hear the voice of an impatient New Yorker. The two-thousand mile Denver connection is an accomplishment of the last few years, and is made in relays through Chicago and Omaha. The Chicago lines are direct; Philadelphia is regarded as but little more than a suburban exchange, and the

service is as prompt. And the promise is made that in less than a year San Francisco will be within hailing distance of New York."

Eidlitz & McKenzie, Voorhees & Gmelin were associated as architects of the building. Boller and Hodge were consulting engineers for the foundation and structural steel design, and Henry C. Meyer, Jr., for the mechanical and electrical equipment. Bruce E. Loomis was consulting engineer for fire protection. The O'Rourke Engineering Construction Company placed the foundations; Levering and Garrigues Company built the steel superstructure, and D. C. Weeks and Son were the general contractors. The foundations were started in April, 1911, and the superstructure in March, 1912. The building was entirely completed in December, 1913.

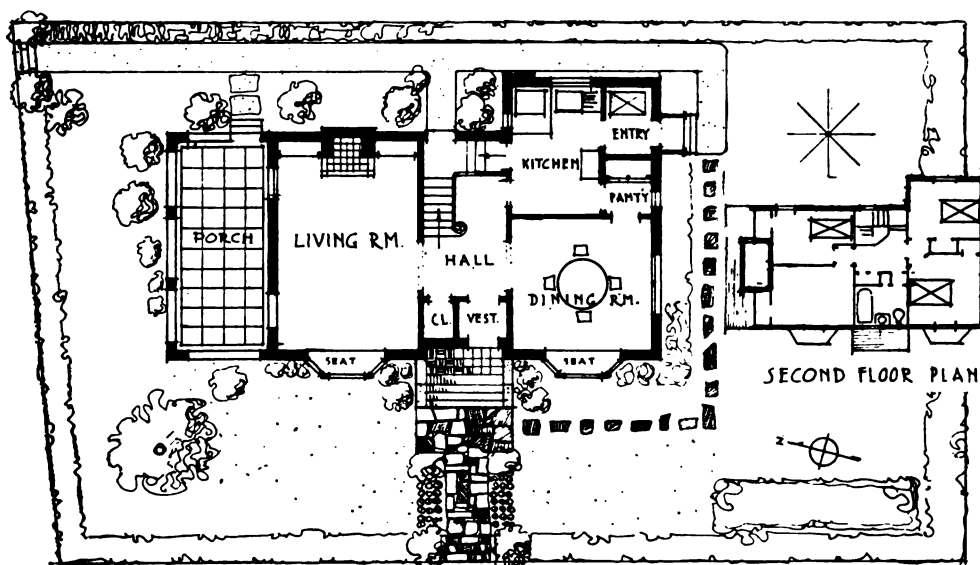


THE BRONX OPERA HOUSE, NEW YORK.

Electrical Contractors: Edwards Electrical Constructoion Co.
 Star Expansion Bolts.
 Stanley Butts Used.
 Fireproofing: Arthur Greenfield, Inc.
 Chairs for Boxes: Jacob & Josef Kohn.
 Stage Equipment: William Camph.

George Keister, Architect.
 Matthew B. Carson, Illuminating Engineer.

Railings and Grills: Penn Brass & Bronze Works.
 Automatic Sprinkler Equipment: Rockwood Sprinkler Co.



FIRST FLOOR PLAN
HOUSE AT FOREST HILLS GARDENS, LONG ISLAND, N. Y.

Robert M. Farrington, Architect.



INTERIOR OF HOUSE AT FOREST HILLS GARDENS.

Robert M. Farrington, Architect.

PROGRESSIVE ARCHITECTURAL CONSTRUCTION

By FREDERICK SQUIRES

Plate IV.—The Texture-Tile House

THE accompanying detail sheet shows the building I have called the House of Three Inventions; texture tile for the exterior, forms of sand for a part of the floors and forms of bevel block for other parts. Sand-molding was discussed in the last issue of this series.

I call the use of uncovered tile for a building an invention. Looking at it from another point of view it is no invention at all because every tile house in the earlier stages of its construction, before stuccoing, shows exposed hollow tile. It was the attractive appearance of such uncompleted building that showed the possibilities which might be made use of by refining the material itself and when it was found that hollow tile and a very beautiful textured brick were made at the same factory the application of textured brick surfaces to tile was evident.

Given the outline of this house of texture-tile and the condition that it be divided into burnt-clay building units of fitting size, how would you articulate its surface? I am very curious to hear, or, rather, to see the answer. Of one thing only am I sure. You would not draw common brick divisions. You'd draw uncommon brick dimensions. If the house were of any other material than burnt-clay, you would surely use as large units as you could. If it were clapboards, you'd want them ten inches to the weather and be keenly disappointed if your owner cut you down to stock dimensions. The same with shingles. You'd make a fight for wide hand-split cypress. In ashlar you would use big stones and wide joints, irregular I'll grant you, but of large average. Mr. Atterbury turns his brick on the wide side. The larger than brick unit fulfills the requirements of scale.

But it wasn't scale that led to the discovery of texture tile. Tile is the big brother of the brick. Economy in manufacture dictated the large unit just as the limits in size of the successfully burnable lump clay dictated for centuries the size of the brick.

The other invention is the beveled block and above it is the non-conductive flat roof. The V beam is in line with our discussion of sand moulded beam perfection though bound down a little by the limitations of the manufacture of the machine-made form. It is generally known that the cored concrete slab is economical and efficient and that the beam section to be economical should be top heavy. In order to produce this in the simplest possible way and also provide a level ceiling, single units of tile in the form of truncated pyramids have been provided which, owing to the necessities of tile manufacture, are open on two of their six sides. In general practice it has been found that concrete poured into the channels formed by these open ends doesn't enter them further than enough to give a good mechanical bond. If it is required to completely dam the concrete from these ends it may be readily done with sand placed in the groove and pressed into the openings before the concrete is poured and if a mechanical bond is required the exact amount of it may be secured by sweeping the sand already placed in the ends of the tile back from the face by means of a broom. The sand has a desired curative effect on the concrete.

A flat roof must be carefully insulated against transferring the vertical rays of the noonday sun. Here the insulation is performed, first by the slag, then by the loose, granular, air containing cinder fill. Each air-space in it is infinitesimal and the stages by which the heat above works from air space to neighboring air space below is very slow especially since the heat is going contrary to its natural rising tendency. When it gets to the concrete, that good conductor, it must travel below it through the dead air spaces of the tile, layer by layer to the bottom of the block. There is no better way to check it. Fires under such a roof have not melted snow lying upon it. So much for the House of Three Inventions, built of concrete and texture-tile.

Department of Fireproofing and Fire-Prevention

Rulings Concerning Factory Doors.

According to recent instructions issued by Labor Commissioner Lynch concerning factory buildings: "Entrance doors must be openable from the outside and the inside without the use of a key or any other opening device. All other doors leading to or opening from a factory into a stairway, hallway or onto or into any other means of egress used as a means of exit, or leading to the outer air on the ground floor, must be openable from the inside without the use of a key or any other opening device.

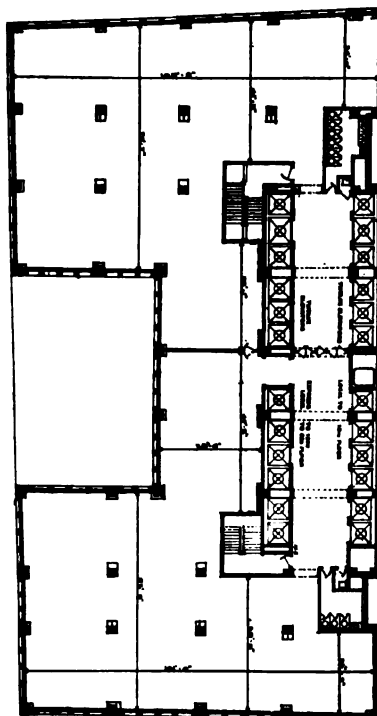
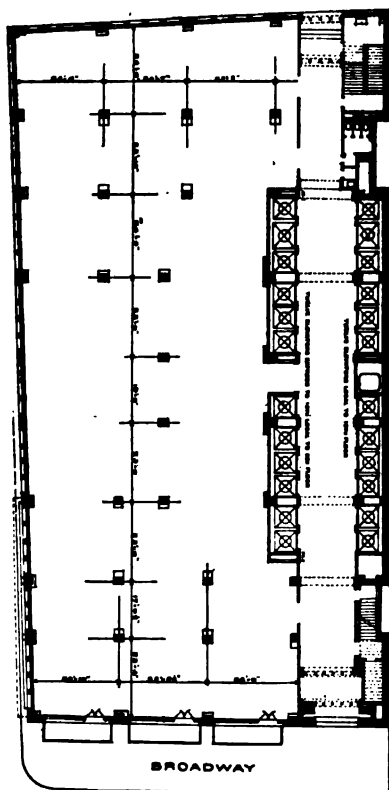
"No bolt or other device of any description shall be used to fasten any door referred to in the foregoing paragraph during the time that employees remain in the factory."

The interpretation of this ruling is such that it will be satisfactory to manufacturers, for, though the entrance doors are required to be openable from both the outside and the inside, other doors leading to the outer air such as doors from fire towers, etc., need not be

openable from the outside if kept unfastened and openable from the inside. The report on this ruling was obtained through the efforts of the Merchants' Association of New York.

N. F. P. A. 18th Annual Meeting.

The programme has been issued announcing the annual meeting of the National Fire Protection Association for Tuesday, Wednesday and Thursday, May 5th, 6th and 7th, 1914, to be held in the auditorium of the Insurance Exchange, Chicago, Ill. In addition to the usual committee reports, which are a very interesting collection of documents read by the chairmen of the various committees, there will be a series of addresses by Mr. Frank D. Chase, Dr. S. W. Stratton, Hon. Robert Adamson and Mr. William H. Merrill. According to the programme, Wednesday afternoon will be given over to a visit to the Underwriters' Laboratories for an inspection of the new and enlarged testing station.



PLANS OF THE MAIN AND TYPICAL STORIES OF THE ADAMS BUILDING.



THE ADAMS BUILDING, 61 BROADWAY, NEW YORK.

Floor Directories: U. S. Changeable Sign Co.
Loomis-Manning Filters.
American Side Sash Pulleys.
Otis Elevators.
Roofing, Cornices and Skylights: Herrmann & Grace Co.
Barrett Specification Roofing.

Francis H. Kimball, Architect.



A PORTION OF THE BROADWAY FAÇADE, ADAMS BUILDING.

Francis H. Kimball, Architect.
 Exterior Marble treated with the "Caffall Process" to prevent weather disintegration.



ELEVATOR CORRIDOR. ADAMS BUILDING.

Painting and Decorating: Peter McKay, Inc.
 Bridgeport Wood Finishing Co.'s Lithogen Primer Used on Walls.
 Flush Valves: Flushovalve Co.

Francis H. Kimball, Architect.

THE CONSOLIDATED GAS COMPANY BUILDING

By CHARLES WARREN HASTINGS

Located on the south side of 15th Street, extending toward Third Avenue, a distance of 297 feet and with a frontage of 84 feet on Irving Place, the new Consolidated Gas Company's Building is a prominent structure which will do much



FIRST PART OF THE BUILDING
BUILT ON 15TH STREET.

to improve the general character of the neighborhood in which considerable building improvements have already been made, such as the new Washington Irving High School and a number of large loft and office buildings. The building houses the administrative departments of the Lighting Companies of the Borough of Manhattan. The building was erected at a cost of approximately \$2,500,000, and is of 19 stories, being 257 feet in height. Its exterior is finished in Indiana Limestone.

Within, approaching by the main entrance on 15th Street, there is a fine hallway finished in Pavanozza marble and a wide corridor similarly treated.

There is gas lighting provided throughout the entire building

with approximately 600 gas outlets, each of which is equipped with electric ignition. Naturally the lighting problem has been thoroughly studied and is considered to be very perfect from an engineering standpoint, as well as novel in its adaptation to decoration. In the main corridor illumination is provided by lights placed behind thin marble panels which produce a soft and beautiful illumination, in addition to the usual fixtures.

There is a fine auditorium on the 13th floor with a capacity for seating several hundred persons, and a stage suitable for lectures and entertainments provided for the educational work of the companies among their employees.

The 19th floor is occupied by a restaurant with a table capacity for 500 employees at one time. The kitchen for this restaurant is equipped with gas heating appliances, and is a model of its kind.

From the standpoint of building con-



THE GREAT GIRDERS WHICH SUPPORTED THE FIVE
UPPER STORIES IN PLACE.



CONSOLIDATED GAS COMPANY BUILDING, IRVING PLACE AND 15TH ST., NEW YORK.

Builders: Geo. A. Fuller Co.

Plumbing Contractor: H. B. Devoe.

Painting and Decorating: Peter McKay, Inc.

Cement Floors and Side Walks: Patrizio & Hendrickson, Inc.

Bridgeport Wood Finishing Co.'s Lithogen Primer Used on Walls.

Kitchen Equipment: Bernard Gloekler Co.

Bulletin Boards: U. S. Changeable Sign Co.

Loomis-Manning Filters.

Otis Elevators.

Barrett Materials Used for Roofing and Waterproofing.

Charging Switchboard: Metropolitan Electric Mfg. Co.

Evans' "Crescent" Expansion Bolts Used.

Copper Covered Windows: M. F. Westergren, Inc.

H. J. Hardenbergh, Architect.

struction, a most interesting problem was presented in the completion of this building. An accompanying illustration shows a 12-story building which was erected two years ago for the use of the Consolidated Gas Company. At the time this was built, the 19-story building was not contemplated, and when the larger building was started it was impossible to build seven additional stories on the old 12-story building as the structure was not designed to support the additional weight. The position of the older structure in the 15th Street façade of the new building is clear. It begins at the sixth bay from the corner of Irving Place and stands out because the windows appear blacker in the illustration. The top of the old building corresponded with the moulded

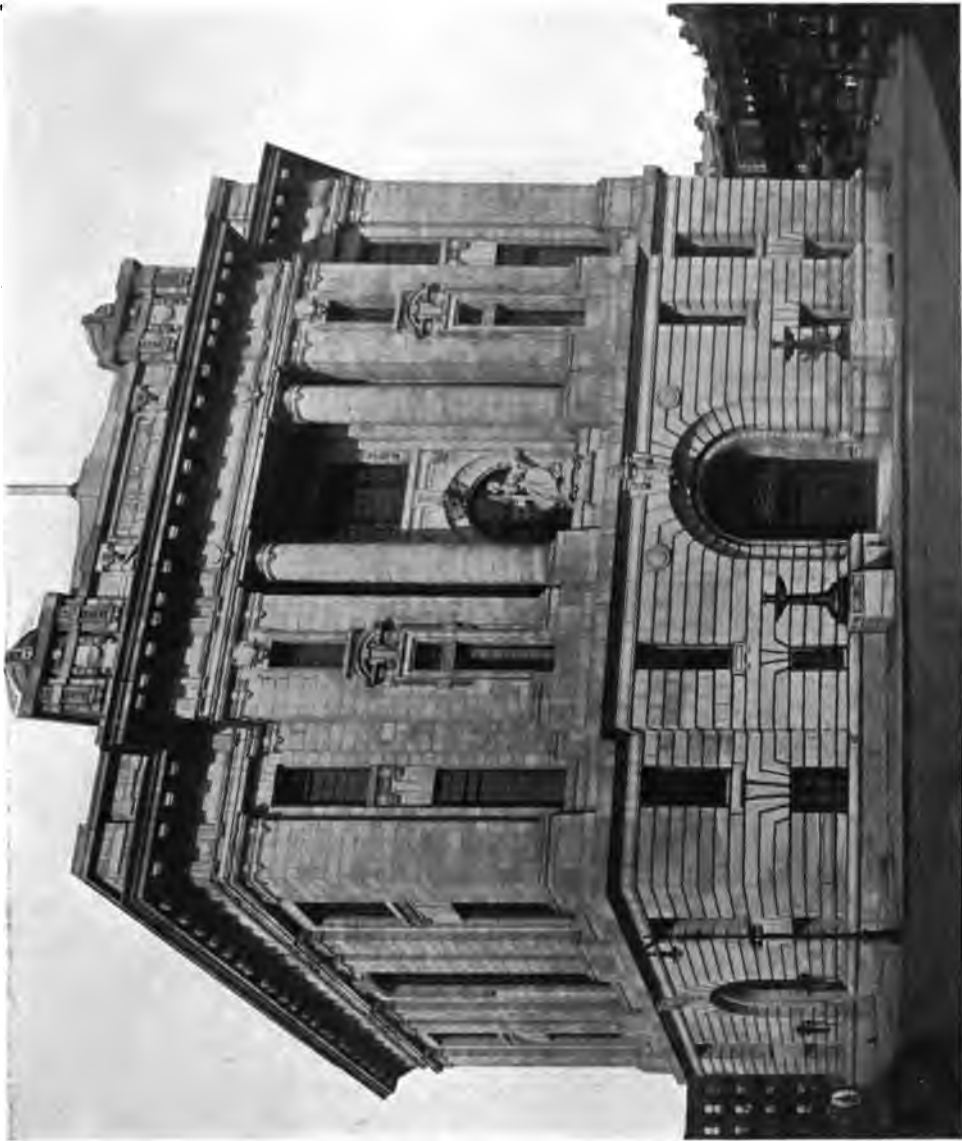
course running about above the 12th story. The solution of the problem of building the extra stories on the old structure was found in supporting them by bridge work from above. Another illustration shows the great built-up plate girders in place spanning from side to side over the old structure and supported by the columns of the new. There are eight of these steel girders, 63 ft. 8 in. long, and weighing 40 tons apiece. Supported from them is the steel work which carries 5 stories or that portion of the building over the old structure.

H. J. Hardenbergh was the architect for the exterior. The Geo. A. Fuller Co. were the builders. The kitchen equipment was supplied by the Bernard Gloekler Co.

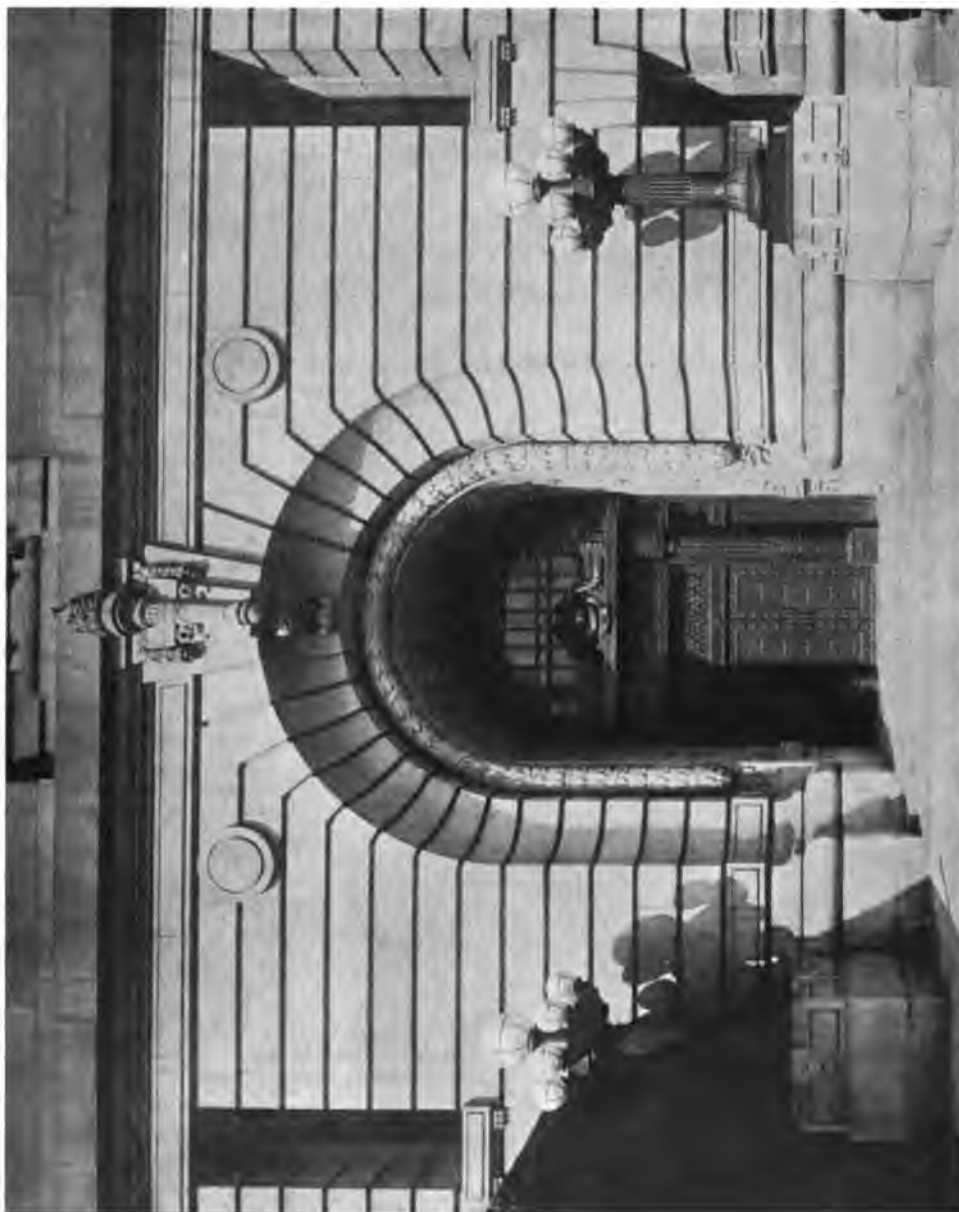


THE ENTRANCE OF THE FIRST BUILDING ON 15TH STREET.

Kitchen Equipment: Bernard Gloekler Co.
Painting and Decorating: Peter McKay, Inc.
Bridgeport Wood Finishing Co.'s Lithogen Primer Used on Walls.



BRONX COUNTY COURT HOUSE, 161ST STREET AND 3D AVENUE, NEW YORK.
Loomis-Manning Filters.
Star Expansion Bolts.
Michael J. Garvin, Architect.



ENTRANCE TO THE BRONX COUNTY COURT HOUSE.

Bronze Lamps: Penn. Brass & Bronze Works.
Ornamental Iron Doors: Grant & Ruhling Co.



DETAIL OF STAIR WELL AND GENERAL CORRIDOR, BRONX COUNTY COURT HOUSE.

Bronze Hand Railings: Penn Brass & Bronze Works.
 Evans' "Crescent" Expansion Bolts.
 Otis Elevators.
 Interior Marble: D. H. McLaury Marble Co.
 Ornamental Iron Work: Grant & Rubling Co.



Michael J. Garvin, Architect.



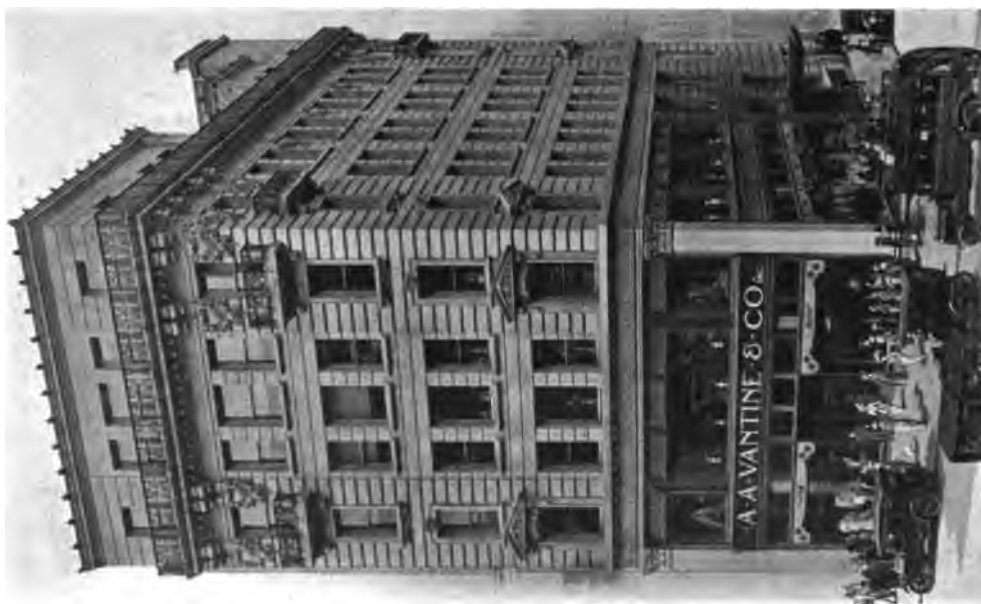
BRONX COUNTY COURT HOUSE. SUPREME COURT AND SURROGATE'S COURT.
Interior Marble: D. H. McLaury Marble Co.
Furniture: Macey-Dohme Co.
Chairs made by the Marble & Shattuck Chair Co.



DISPLAYS IN THE NEW STORE OF A. A. VANTINE & CO.



RIVIERA THEATRE, BROADWAY AND 97TH STREET, NEW YORK.
 Fireproof Windows: S. H. Pomeroy Co., Inc. Thomas W. Lamb, Architect.
 Ornamental Iron: Harris H. Uria Iron Works. Paul Chapman, Structural Engineer.
 Terra Cotta: The South Amboy Terra Cotta Co.



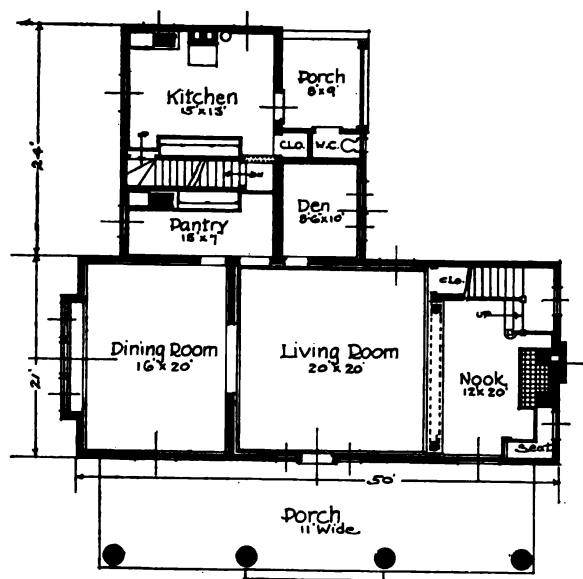
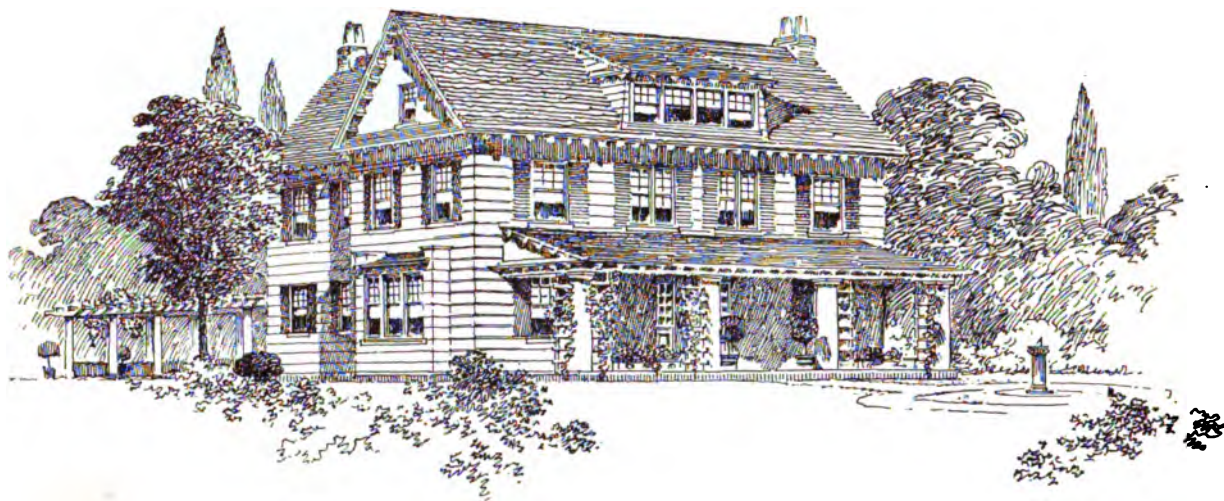
VANTINE BUILDING, 5TH AVENUE AND 39TH STREET,
 NEW YORK.
 Otis Elevators. H. O. Chapman, Architect.
 Composition Floors: Troegerlith Tile Co.
 Dumbwaiters: James H. Roberts Elevator Co.
 Brooklyn Vault Lights.
 Ornamental Iron: Terminal Ornamental Iron Works.
 Evans "Crescent" Expansion Bolts.



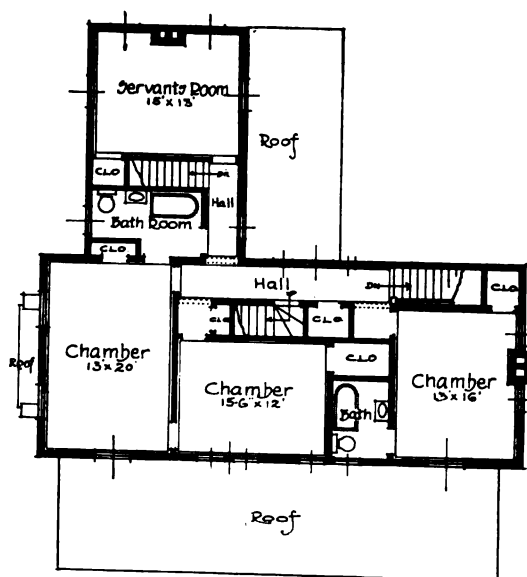
RIVIERA THEATRE.

Chairs and Tables: Jacob & Josef Kohn.
Ornamental Iron: Harris H. Uris Iron Works.
Heating and Ventilating: Lee Heating Co.
Copper Set Art Glass: Art Glass Studios, N. Y.

Thomas W. Lamb, Architect.



FIRST FLOOR



SECOND FLOOR

RESIDENCE OF MR. F. G. HELMBOLD.

C. E. Schermerhorn, Architect.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

Volume XLVI

MAY, 1914

Number 5

It may be said to be a rule with money getters that they know where to go to find it. In other words they never waste their time trying to get blood out of a turnip. Your true money getter never pays too much for anything, either, and if he is to pay for a building—which is always a bad “business proposition” because of quick depreciation and high cost—he trims up the builders with all his might and main. He goes for the weak spot, just as did the shrewd shippers in the good old Summer time when the railroads were making so much money that a rebate on freight was always a possibility if you only went at it the right way. John D. Rockefeller was not the only freight rate rebater in his day. Everybody—that was up to snuff—was doing it, with more or less success, and the “disorganized” railroads were at the shippers’ mercy.

The fact that so many owners were robbed in times past by jolly builders and their jolly companions, the trade unionists, is not gainsaid at all by my statement that now Fortune has turned her wheel and that the same jolly boys are the ones that are robbed. It is but the working out of the law of compensation. The railroads once owned the country; now they are begging for their lives from the very people they used to laugh at.

The jolly builders once robbed the unsophisticated owners; now they are themselves robbed in turn—not exactly by the owners, but by what one might call the paraphernalia of the times. They have made of building a shining mark which Death loves. They have raised a mighty eminence or target to be observed of all in these knowing days, which everybody attacks wantonly, or for the sheer fun of driving a good bargain when times are easy. And when times are hard the owners and their minions, the agents, lawyers and managers who have come to be part of their system, take up from necessity the work of trimming building costs.

This is an important subject for your consideration. Builders and contractors must not be driven from the face of the earth just because they have been foolish. It may be that folly deserves destruction, but after all, even the unfortunates of whom some great man

said "one is born every minute" are needed to do their part of the world's work.

Who will be the one to awaken these potentially useful members of society from their folly and lead them out to a sane and respectable condition?

The other day an entertaining writer said that nobody reads anything at all now-a-days excepting the Stock Exchange quotations and the sporting news. Doubtless true. I don't believe the jolly builders of the great cities of this country read any more than the rest of the citizens. If they ever think—well, that is another question. Doubtless some of them think. Perhaps they apply their intellects to the subject of the condition of the building business and wonder when the good times will come again. They look around at the competition that confronts them and—think some more? I do not believe they do. They quit thinking.

Competition, competition, competition everywhere. No prospect of a change until the larger part of their number is destroyed. While they wait thus in the stupor of despair—or resignation—their trade union raises the wages 5 cents an hour.

If they did think, or could think, it would be of some "combination" which the law does not allow. That was the old way and it never worked except for a very few. The architects who were educated to the old "combination" idea have gone—died, retired or lost their patronage—succeeded by the newer types of agents and lawyers who trim the contractors for the owners now. What shall we do? is the question, and nothing but an echo for reply.

There are a few of the old kind of architects and a few of the old time builders who are still in clover, but they will be smoked out—the more's the pity—for them.

Now comes a pause for breath. I read some words of Mr. Thomas Lawson once, four or five installments of them, to see what he considered was the cure for all the things that ail us. He seemed to lead up to it time after time, only to shy off. I never found out what he thought would do it. Like Mr. Lawson, I, too, know what we should do to be saved, but—how to tell it? After all, it is like saying, "Be good and you will be happy," which is the same as saying nothing at all.

Nature abhors waste and extravagance just as she abhors a vacuum.

Buildings cost too much. It is a question whether good times for the builders will ever come again until the cost goes down.

There are several ways that this can be done. Some day you may be interested to follow the matter further.

But now, there's one thing that can be done.

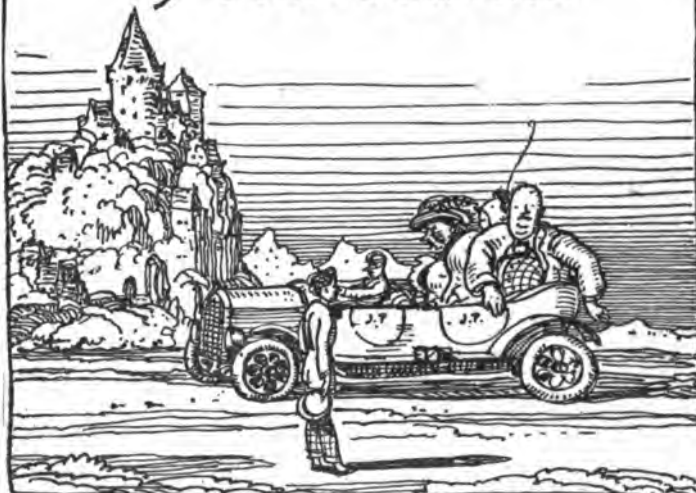
But what's the use of saying it? What's the use of any of this talk? Well, it may set some one thinking. The one thing that can be done—that will not run afoul of the Anti-Trust laws is this: **STOP AND THINK!**

Theodore Starrett.

ARCHITECTONICS

POT-POURRI

by Tom Thumtack



Harold Lesser tried hard to be an honest architect, and let us say with that dear lady, Charity, that so he was before he met John Pot. But from that meeting hangs this heavy tale.

Not content with being a beaux-architect, Harold aspired to be Beau Brummel as well, occupations congruous enough if one can pay the price which often like a mighty chasm yawns between. Yawn though this chasm may, it gave Harold many a sleepless night before there rolled upon his view the motor car of old John Pot. In it was his mighty family which might as well be introduced right here in this, their favorite setting, sitting in their favorite car. First, old man Pot. Oil on the farm in Ohio. "Turned the oil into cash while it pumped; turned the farm into cash when it slumped," to quote his favorite joke. Sold his five hundred acres punctured with a lot of perfectly good oil wells to a chap who had inherited the parental money without the brains that made it. "Although there was very little oil left in the wells they didn't hurt the farm a bit," to quote again. Transplanted to New York he pursued the self-same system with the same success when he took root in Wall Street. What's in a name? Wall Street nicknamed him Jack Pot. He got what he

went after and he went after everything that wasn't nailed down by the District Attorney. Mrs. Pot was a society woman, stern of visage, broad of beam, power written in every line of her dreadnaught bulk, the power of push and pelf which had forced the gates of the social citadel. By her birth was invented the species militant. John boasted that he always got what he wanted and once he got considerably more than he wanted, and then some.

Worthy offspring of this mighty match is daughter Therese. Back in Ohio school days before old man Pot noticed the oily iridescence on the waters of Buck Run, the neighbors used to call her Three-Spot. She was the right answer to the riddle, "What happens when an irresistible force meets an immovable body." She certainly was there with the bulk and the clothes to cover it, but for looks Therese was a bad bet and counted six more summers by the family Bible than by her own coy confession.



All were fighters born and bred. Glancing from face to face it would be hard to pick the winner. The dove of peace was seldom present and never welcome. The good old steel-heeled game-cock was more their breed of bird. You could plainly hear a family debate when their car was running with the muffler cut out, and they say that one summer when his women folks were marathoning through fashionable Europe, Jack Pot at home was very restless till he happened to run onto a boiler factory. Before he left its dreadful din he had bought that home-like little shop.

Harold Lesser met this family at a social function where he echoed the loud-voiced unison of their desire to build a country house, and when the carload which I have just described crashed into his office in quest of plans Harold thought his day had come.

Take a belated look at Harold. An exquisite and an artist, sensitive to all the nicer feelings, and just as sensitive to criticism. Ambitious, but lacking the slow courage to overcome the lions in the way of sound attainment so that he shifted real difficulties of his prac-

tice on hired shoulders. But adaptability, good breeding and good looks made him a charming comrade for his clients, and he had the gift of putting good taste into mouths which had no taste already there, even if he was not convincing with hard-bitted mouths to which good was distasteful. He talked well; he thought well; he drew well, and if he couldn't fight well at least you'd have to admit that he dressed to perfection. He went the social pace and he needed the money.

With the pugilistic Pots in his office and their object announced, straightway tri-cornered battle joined. As at Salamis, "The right wing first (that's John), then the whole fleet (that's mother and Therese) bore down and straight uprose a mighty shout."

"This house has got to have columns like the Stock Exchange," pounded Jack Pot. "My dining room must have mullioned windows like Warwick Castle," snapped militant jaws that never knew defeat. "A house is a barn unless it has lovely arches like Trinity in Boston," sang out Therese, covering her corner of this new phase of the eternal triangle. Back and forth and all around, from corner to corner, the equal battle raged, no quarter asked, given or expected. Harold was far too lightly built to stem so strong a tide, and he soon saw his chances for a fat commission going up in battle smoke.

But, through it all, his conciliating mind caught a gleam of hope in this fact: that although each insisted on a particular style yet each was interested only in a single part. John wanted the columnar entrance, his wife the baronial dining hall and daughter the arcaded living room. Harold caught up a pencil and swiftly drew the classic portico, the buttressed bay, the Richardsonian arcade, and, having won their attention and stilled the strife by playing favorites right across the board, he succeeded just as quickly with the plan.

Then, because of an insistent triangular demand and much against his will, and with mental reservation, yet procrastinating with the unpleasant explanation of its absurdity, he collected in one facade his studies, Classic, Gothic, Romanesque. This he drew in the same delightful way that one may make a lovely picture of a rose-bowered hovel or an ancient abbey with a modern motor in the foreground. Merely as a drawing, a study in pencil-tones, there was nothing wrong in thus putting together the building history of the Ages. It was merely the abbey and the automobile over again. But horror of horrors! Instantly those iron minds clamped down upon it with finality! Those tired warriors took it as a binding bargain! J. Pot wrote out an order for plans like the accepted sketch, marked it for identification, and insisted on getting a careful copy to take with him. Harold's temporizing policy had no chance against such irrevocable decision, especially since J. Pot utilized his time to draw a check in three big figures.

Lesser was in for it! These sturdy fighters had each got his pet idea, and if Harold should try to modify the terrible triumvirate in favor of a single style the other partisans would turn and rend him. It was too late to plead the truth that the whole scheme was a trick

to get them past a deadlock and must be corrected later. People tricked the Pots just once before the ambulance came clanging up. Furthermore, each one had a deep regard for the other's opinion in all matters where it didn't cross his own and would fight for it against the outside world. Last, but not least, the compromise was Harold's own suggestion and *his name was on it!*

It was not until next day that Harold realized the full seriousness of the situation. He had contracted to break all the Ten Commandments of Architecture with a man who believed that a contract is a contract. He had heaped contempt upon her constitution and her by-laws. He had violated his oath of office. The other horn of the dilemma was the loss of money and the vengeance of powerful old Jack Pot. There was no third. Choose art or pocketbook! There was no chance left to temporize with so militant a family.



In desperation he caught up the sketch. The hostile emissaries of the schools of rule and feeling stared back at him. They seemed first to plead with him and then, discovering how craven was the spirit that had thus handcuffed them together, they scoffed at him with the fine contempt of noble martyrs marked for a weakling's sacrifice. Suddenly, sobered by this handwriting on the wall, Lesser had half made the harder choice when the telephone's sharp clamor checked the balances just trembling towards decision. It was Harold's tailor talking. When the conversation ended, the heavy weight of debts unpaid had been piled upon a single side of the scales of choice. Harold attacked his drafting board and ruthlessly collected church, castle and stock exchange. So close were they that the Goth and Roman rubbed elbows with the Greek. Architectural adversaries of the centuries, column, buttress, arch, stood with swords drawn for the silent strife of discord to whose victor could belong no spoils. It was Pot-boiling with a vengeance.

After Harold once got started, Pot kept his nose down on the grindstone. Glad to get it over, like pulling an aching tooth, Harold rushed the building under contract. At first he was in a frenzy of

nervous apprehension every time a tracing went to the blueprinters, for fear some compatriot's office boy might see the scheme and spread broadcast the news of this three-headed circus prodigy. For these very potent reasons this history-of-architecture-in-one-lesson was soon a material fact. Jack Pot on the job was a powerful incentive for everyone to hustle. Even the hod carriers abandoned their usual deliberation for the turkey trot. Soon the house was finished.

Harold thought he could keep his cake and eat it, too, for the architectural graftling remained hidden from captious critics among its Long Island hills. It is true that the Pots talked to their friends about it, but such was their egotism that their own selection was described to the exclusion of the rest. Society folk are none too critical of architectural periods or of any beauty save of person and adornment. Had these friends known even more than is required of the Four Hundred they could not have analyzed the strange concoction of this architectural cocktail. The thread of his sword of Damocles seemed wire and the sudden increase in his means had an effect on Harold sad to see. He appeared in even finer raiment and spent more time in boastful intercourse with his professional confreres. As time lent strength to his sense of security this superiority grew increasingly offensive. Was he not well grounded, trained and talented? Surely, said the Profession, but for goodness sake let some one else inform us of it. Was he not well-born, well-dressed, and well-accepted? Certainly, but leave it to Town Topics.

The Pots were pleased with the house, especially Therese, who called at Lesser's office oftener than her arches actually required. This was not lost on Harold who seemed distinctly thoughtful after each interview.

* * * * *

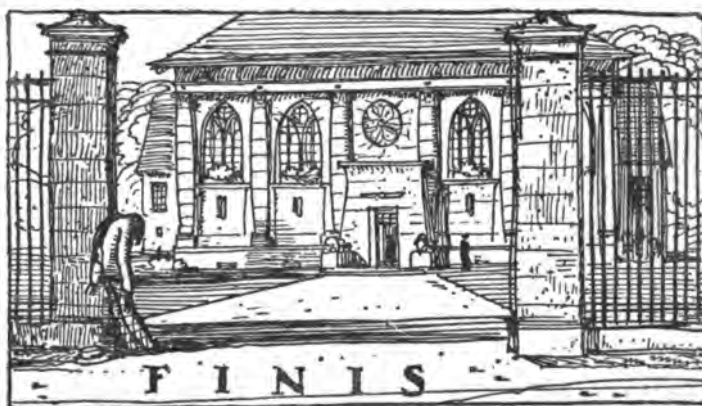
For years the cashier may loot his bank and enjoy his ill-gotten gains. On the fated day, the merest chance may overturn his well-schemed safety. Jack Pot had a friend who loved beauty as much as he hated bunk. With a gasp, he happened on this terrible place of the Pots'. Next day he put a hypothetical question to a Mr. Distinguished-Architect and acting straightway on the answer sent a photographer to the mansion. The picture went to the best of the architectural journals, along with Harold's original signed drawing which had been borrowed from its proud possessor, Pot.

When the magazine arrived, Harold was sitting in his private office waiting for his constant client. Suddenly his eye collided with a horribly familiar picture under the scare head, "Architectural Aberrations." There shrieked his drawing and below it the photograph of its faithful execution; and under all in monstrous letters the screaming title "Pot Pourri!"

With a crash had fallen reputation. He, the caustic critic of his fellows, the boastful singer of self-praises, had prostituted principle to pocketbook and, caught red-handed, had emerged the laughing stock of every office.

At this awful moment arrived Therese. Her tender look suggested to panic-stricken Harold a way out of his difficulties. Before she left he had been convinced that he ought to give up architecture to devote every minute to his promised wife. Therese still thinks that it was her suggestion.

The other day, while on a motor ramble through Long Island, I saw a familiar figure of somewhat shrinking elegance, planting trees and vines to screen from view a queer composite pile, a very travesty of time, a Pot Pourri of Architecture.





A BEAUTY SPOT

IT was not Shakespeare who said comparisons are odious; he used the word odorous, probably meaning the same thing or worse. Superlatives are odorous too, more so than comparatives I should think, because the superlative excludes all but one from the favored class.

Like Diogenes hunting for an honest man, a certain friend of mine hunts for pretty buildings. And one is as hard to find as the other, if his opinion is to be taken. There are doubtless *some* honest men, just as there are some good looking buildings, but as a rule they are "far between."

What would you think, gentle reader, if I told you that there is a development, as they call it, 29 minutes from Broadway, out on Long Island on which have been built to date on plots averaging almost 300 feet wide some thirty-six residences—every single one of which is a beauty?

I have seen the place twice and have talked with one of its builders. It is only partly finished as far as the buildings are concerned, but in all other respects it stands a completed "beauty spot," as I call it, the like of which I really believe does not exist anywhere else in America. That is a superlative statement, made without prejudice. Let other builders of developments emulate it; let them surpass it if they can; Kensington will be a beauty spot still.

One noteworthy thing about this colony—I don't like to call it a development—is the variety of its architecture. It is, as it were, a symposium of tasteful designing. One interesting case is that of two houses built on the same plan for different





owners by different architects. Each owner liked this plan; each had his own ideas of what he wanted and each employed his own architect to produce those ideas. The two dwellings are shown side by side on page 187. One was designed by Mr. Walter L. Hopkins, architect, for its owner Mr. Nathaniel Huggins; the other was designed by Mr. Alfred Busselle, architect, for Mr. A. P. Heinze.

The story of Kensington, the original conception and the way in which its builders went about the work of development, is well told in the modest words of one of them, Mr. E. J. Rickert.

"The Rickert-Finlay Realty Company purchased the property now known as Kensington ten years ago, before there was any real estate activity on Long Island. It was selected because it was on high ground, with a splendid outlook over Manhasset Bay, and only four blocks from a railway station. It was known then as the Beverly farm, and was noted for the magnificent row of maples and lindens, nearly a mile long, extending through the entire property. These trees had been planted about thirty years previously, and were set out with a view to the development of the property for residential purposes. It continued to be a farm, however, for over a quarter of a century, and nothing whatever was done towards its improvement until about four years ago.



"At about the same time that this property was purchased, the Rickert-Finlay Company also purchased more than one thousand acres on Long Island, including 160 acres on the East River in Astoria, part of which has been recently purchased by the city for a park. The other tracts included Norwood, in Long Island City; Broad-



way-Flushing, in Flushing; Bellcourt, in Bayside; Douglas Manor, in Douglaston, and Westmoreland, in Little Neck.

"The company improved all the above properties before it began to improve Kensington, and the development of Kensington was the result of the company's experience on the other properties.

"The first property developed was Bellcourt, in Bayside, which was improved along the same lines as had heretofore prevailed on Long Island—that is, gravel sidewalks were laid, streets were graded and shade trees were set out, no other improvements being made.

"In the sale of Bellcourt, however, it was found that there was a demand for better improvements, and, consequently, when Douglas Manor was developed, cement sidewalks were laid, macadam roads were built and trees and hedges were set out. Broadway-Flushing and Westmoreland, which came next, were developed to about the same extent as Douglas Manor, all then being considered the best improved properties on Long Island.





"In the sale of these properties, however, it was found that a certain class of people were not satisfied with the improvements and wanted something better, and it was therefore decided, largely as an experiment, to give purchasers in Kensington every improvement that had been demanded in the other properties.

"The result was that in Kensington, in addition to cement sidewalks and macadam roads, a complete sanitary sewer system, approved by the State Board of Health, was installed, regulation 6-inch cast iron water mains were laid throughout the property, and an underground conduit system for street lighting was provided. The whole property was provided with a system of surface pipes for sprinkling in dry weather, a patrol system, with watchman's boxes in every part of the property, was installed; miles of privet hedge and thousands of flowering shrubs and ever-greens were set out.

"Kensington was at that time nearly a half mile from the head of Manhasset Bay, and it was decided that, as Kensington could not be moved to the water, the water would have to be





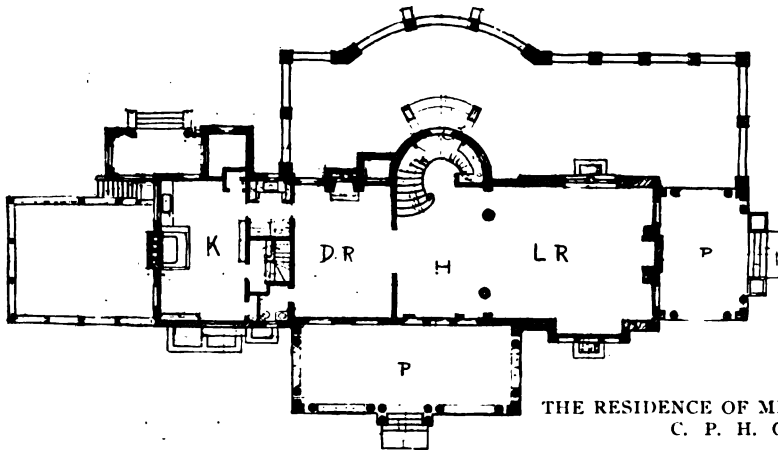
brought to Kensington. Consequently, an agreement was made with the other property owners at the head of the bay, providing for dredging a canal from the deep water in the bay to Kensington, on the condition that the town of North Hempstead would sell the meadow land to the abutting property owners. This proposition was submitted to the voters in the election of the fall of 1911 and was approved.

"Contracts were then made for dredging the canal, filling in the meadows and building the harbor at Kensington. This work, which is now practically completed, and has been very successful, has cost considerably more than \$100,000.

"The canal is two hundred feet wide and has ten feet of water, permitting yachts and motor boats to go right to the dock at Kensington. It is of generous size, being approximately of the same width as the Panama Canal.

"The water front park, containing 210 city lots, has a beau-





THE RESIDENCE OF MR. E. J. RICKERT.
C. P. H. Gilbert, Architect.





HALLWAY AND
PIAZZA. RESI-
DENCE OF MR. E. J.
RICKERT.



A BED ROOM, LIV-
ING ROOM AND
DINING ROOM IN
MR. RICKERT'S
RESIDENCE.





HOUSE OF MR. NATHANIEL HUGGINS.
Walter L. Hopkins, Architect.



HOUSE OF MR. A. P. HEINZE.
Alfred Busselle, Architect.

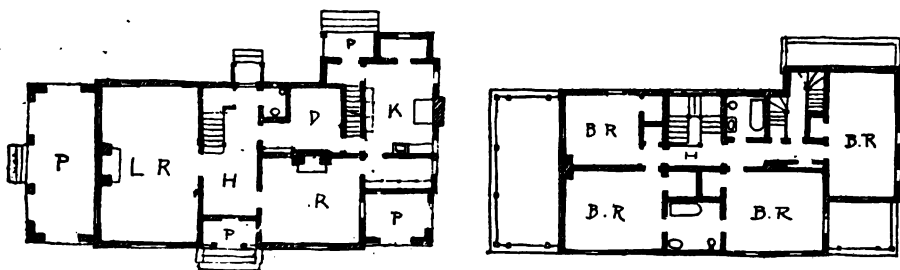
tiful sandy beach five hundred feet long. One of the largest swimming pools in the country, supplied by artesian wells, has been completed, and the whole park property has been beautifully laid out with walks, drives, lakes and tennis courts. Provision has also been made for a casino and bath house, the latter having just been completed.

"In the development of previous properties, the Company found that it was not safe to leave the architectural character of the houses to the discretion of the purchasers, for whereas a majority of the home builders would employ good architects, others would not do so, and the beauty of the property would be marred by architectural failures.

"In order to make this impossible, every deed to property in Kensington contains a provision by which no house can be erected unless the design of the exterior is submitted to, and approved by, the Kensington Association.

"The total cost of the thirty-six houses thus far erected in Kensington is approximately three-quarters of a million dollars, the lowest-priced house being about \$12,000, and the highest about \$60,000.

"One of the ways in which Kensington particularly differs from other properties is that the restrictions prevent any crowding of houses, the effect of this being shown by the fact that the average street frontage of the houses already built in Kensington is 278 feet. This, of itself, is one of the strongest arguments in favor of the property, for one of the greatest objections to the ordinary development is the crowding together of the houses.

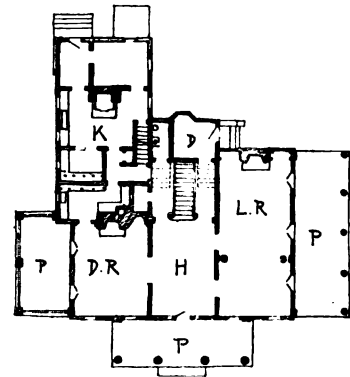


THE HOUSES FOR MR. NATHANIEL HUGGINS AND MR. A. P. HEINZE WERE BUILT FROM THE SAME PLAN.

A comparison will show that the average frontage in Kensington is nearly three times what it is in any other development."

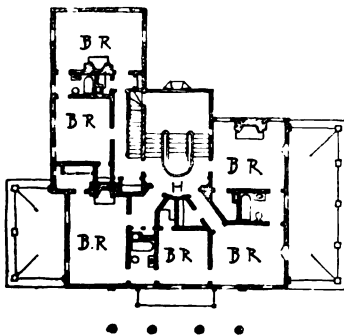
And withal the architecture is only one part of this charming spot. The trees on the property, the row of maples and lindens referred to, the group which clusters around the western entrance to the grounds and the grove which covers the eastern end, are more beautiful than the buildings. They are worth going miles to see.

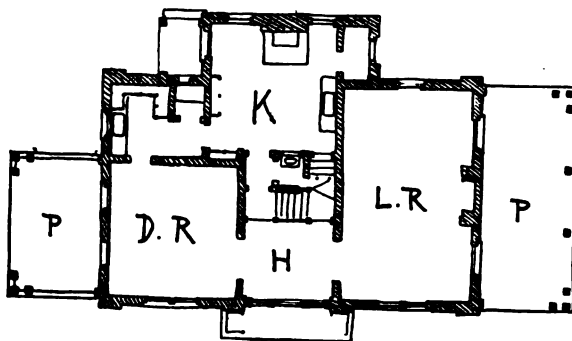
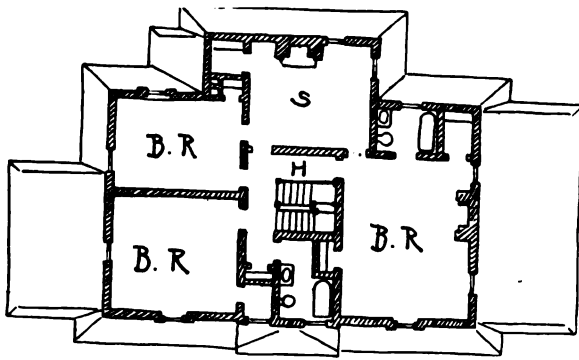
Theodore Starrett.



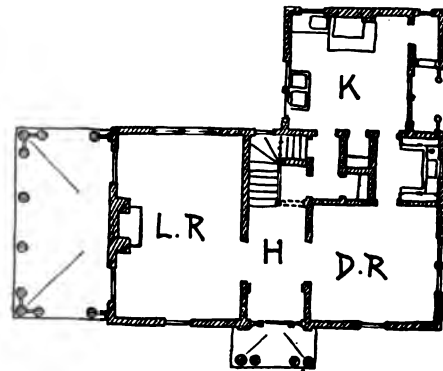
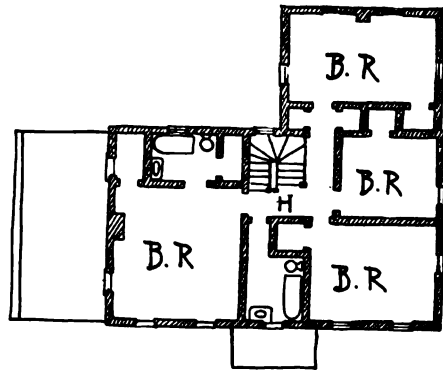
THE COLONIAL HOUSE OF MR. C. E. FINLAY, WITH ITS FORMAL GARDENS.

Little & Brown, Architects.





PLAN OF THE JORDAN HOUSE.

PLANS OF MR. WIGHTMAN'S
HOUSE, AND THE SIDE
PATH.



HOME OF MR. GEORGE B. WIGHTMAN.

Aymar Embury II, Architect.

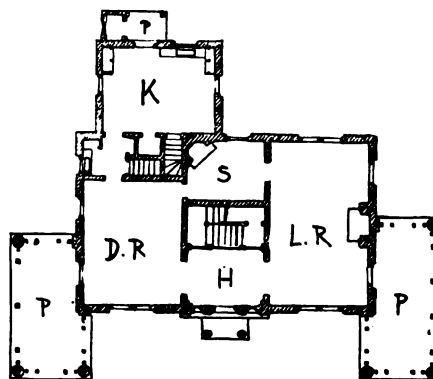
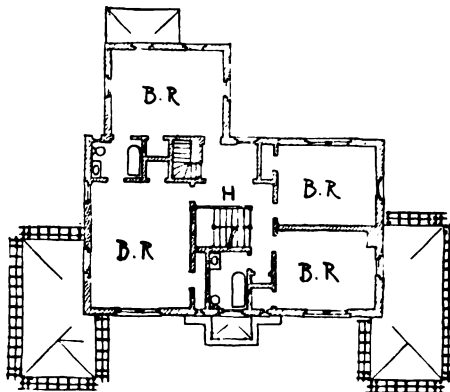


HOUSE FOR MR. FREDERICK S. JORDAN.

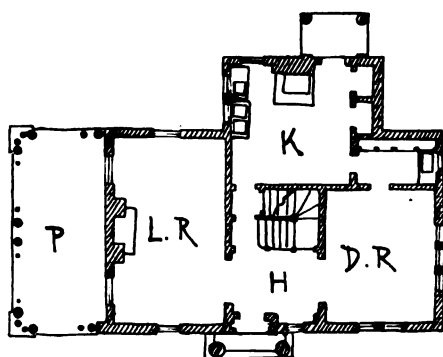
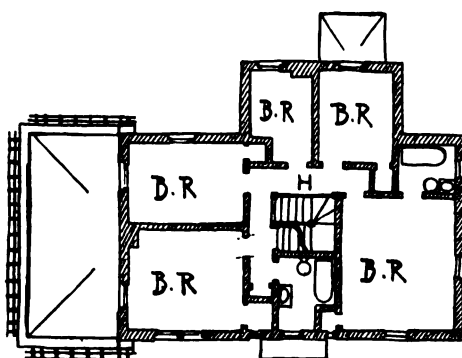
Aymar Embury II, Architect.



A DETAIL OF MR. J. C. CRANE'S HOUSE.
Aymar Embury II, Architect.



PLANS OF MR. CRANE'S HOUSE.



PLANS OF MR. SAWYER'S HOUSE.



COLONIAL DOORWAY, HOME
OF MR. C. E. FINLAY.



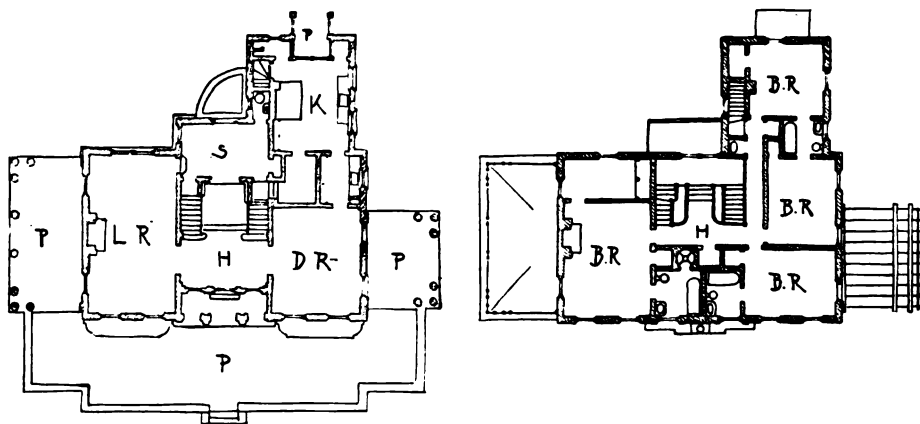
HOUSE FOR MR. J. A. SHERMAN.

Aymar Embury II, Architect.

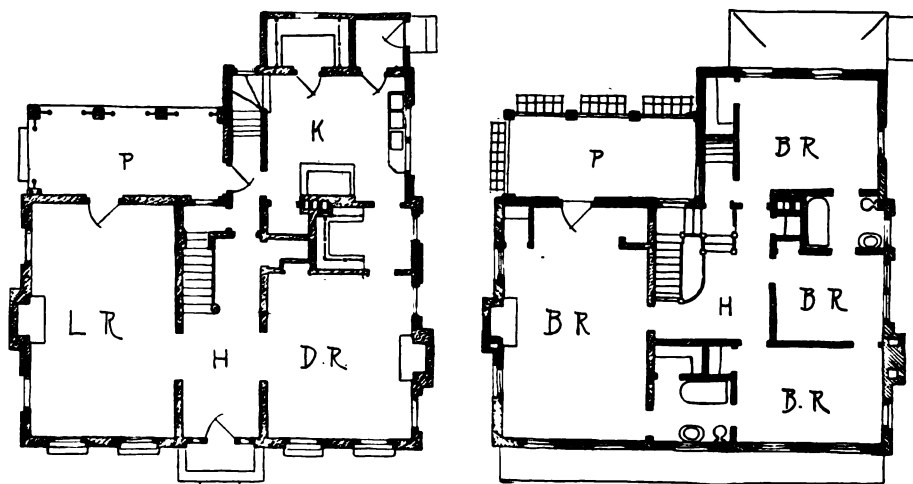


HOUSE FOR MR. H. F. SAWYER.

Aymar Embury II, Architect.



ENTRANCE AND PLANS OF THE HOME OF MR. KING.



PLANS OF MR. AINSWORTH'S HOUSE.



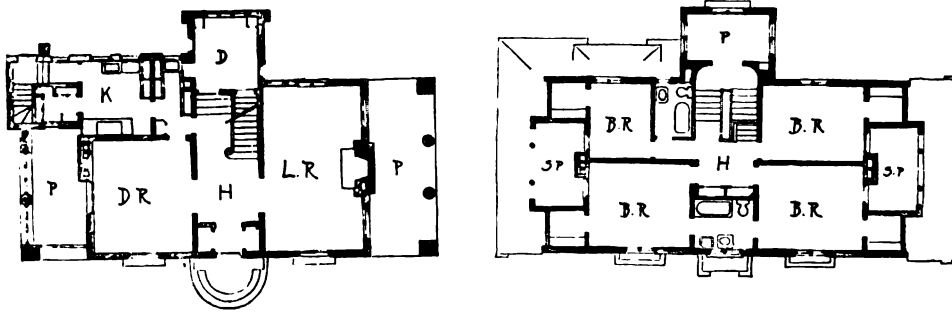
HOUSE FOR MR. HITER KING.

Aymar Embury II, Architect.



HOUSE FOR MR. GEORGE R. AINSWORTH.

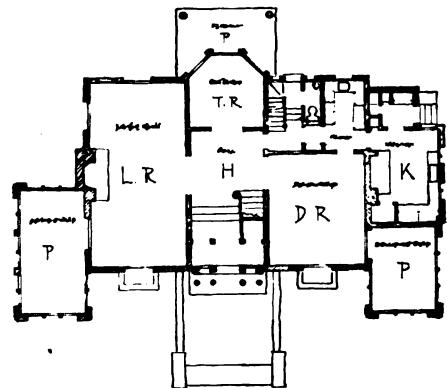
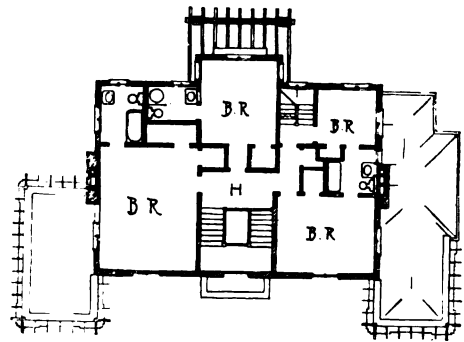
Aymar Embury II, Architect.



PLANS OF THE HOUSE FOR DR. PRENTISS.



ENTRANCE TO THE HOUSE OF DR. PRENTISS.



PLANS OF MR. TAYLOR'S HOUSE.



HOUSE OF DR. E. B. PRENTISS.
Frederick Wallick & G. W. Terwilleger, Architects.



HOME OF MR. O. R. TAYLOR.
Aymar Embury II, Architect.



THE HOME OF MRS. L. Y. COX.

Forman & Light, Architects.

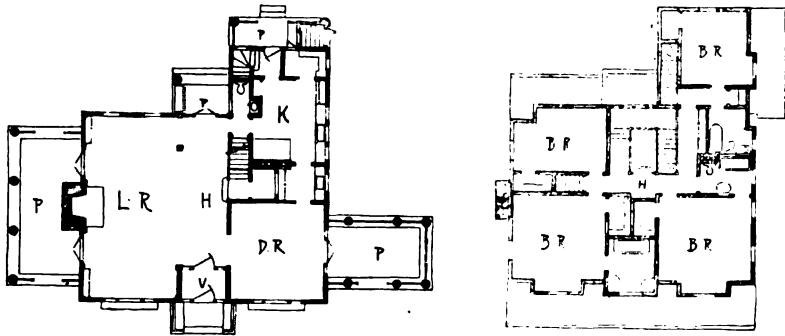


THE HOME OF MR. JAMES CLARENCE HARVEY.
Frederick Wallick & D. W. Terwilliger, Architects.

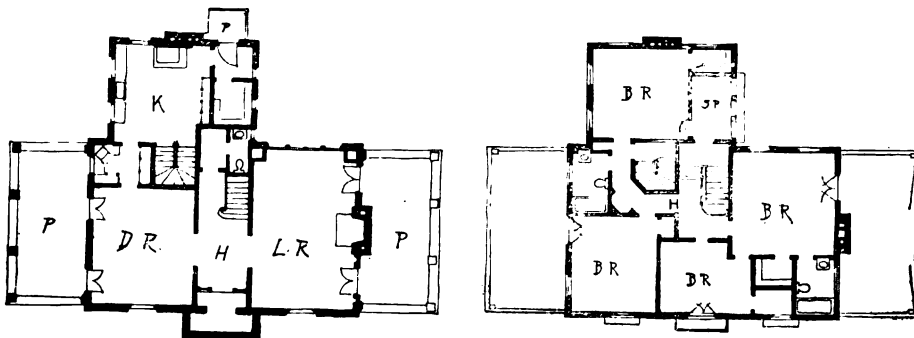


HOUSE FOR MR. E. C. DEVEREUX.

Forman & Light, Architects.



PLANS OF THE COX HOUSE.



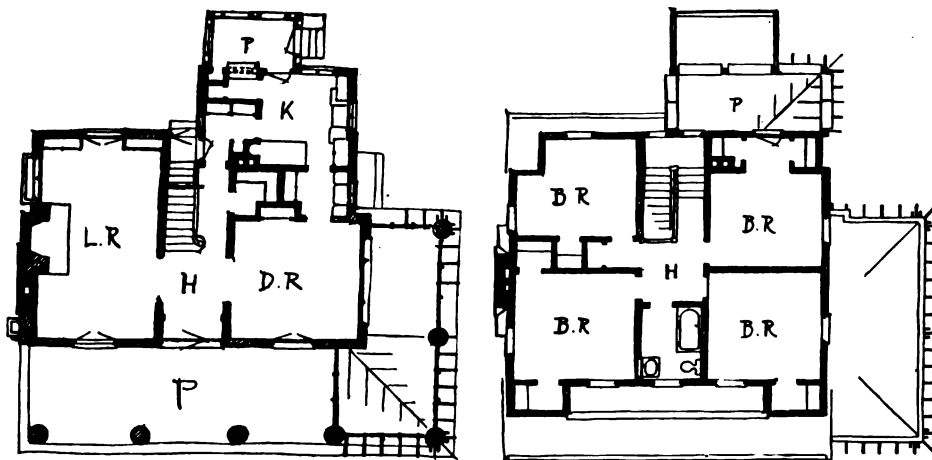
ENTRANCE AND PLANS OF THE DEVEREUX HOUSE.



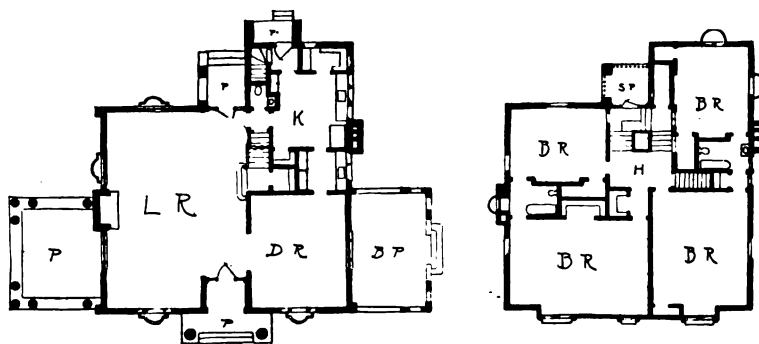
A HOUSE BUILT FOR MRS. MARIE GAYLORD.
Frederick Wallick & D. W. Terwilliger, Architects.



HOME OF MADAME LAURA DE MAGNIN.
Walter L. Hopkins, Architect.



PORCH AND PLANS OF THE GAYLORD HOUSE.



PLANS OF THE DE MAGNIN HOUSE.



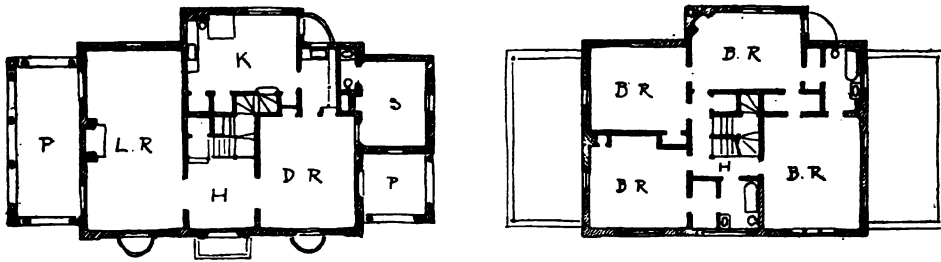
HOME OF MR. ROBERT F. HOBBS.

Aymar Embury II, Architect.

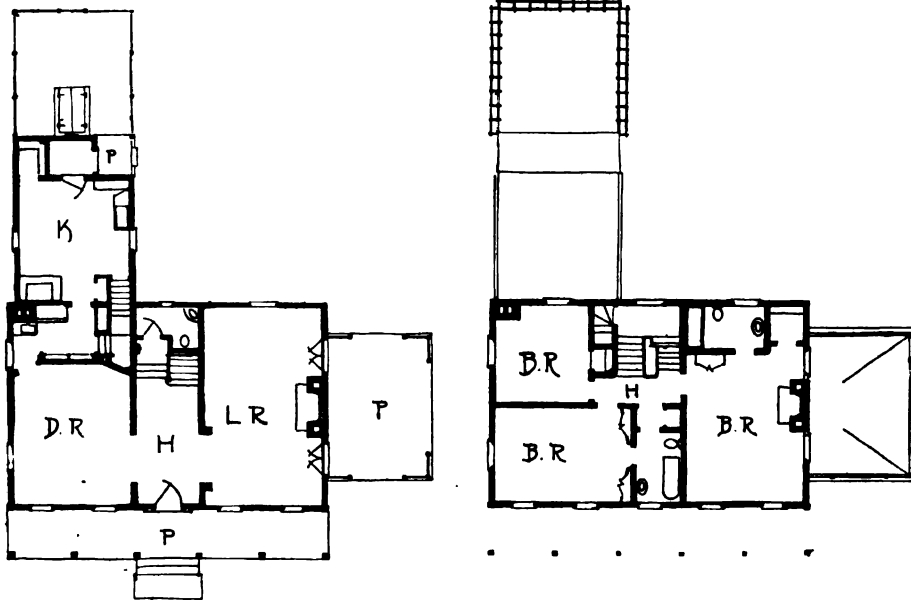


COLONIAL HOUSE FOR MR. RAYMOND S. CLARK.

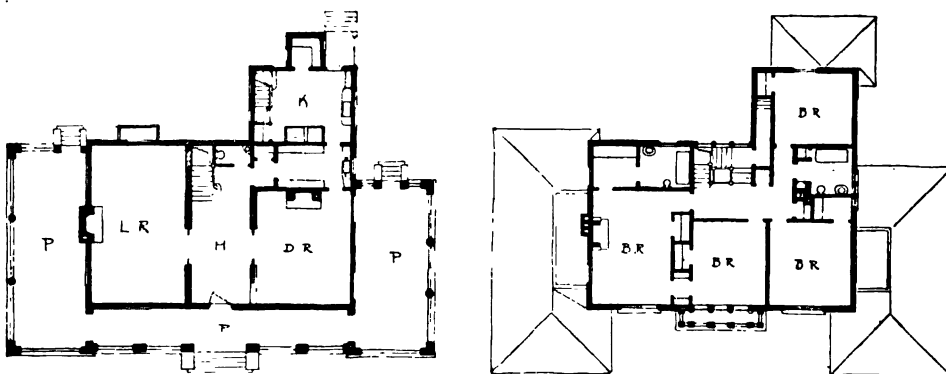
Alfred Hopkins, Architect.



PLANS OF THE HOUSE FOR MR. HOBBS.



PLANS OF THE HOUSE FOR MR. CLARK.



PLANS OF THE HOUSE FOR MR. HYPES.



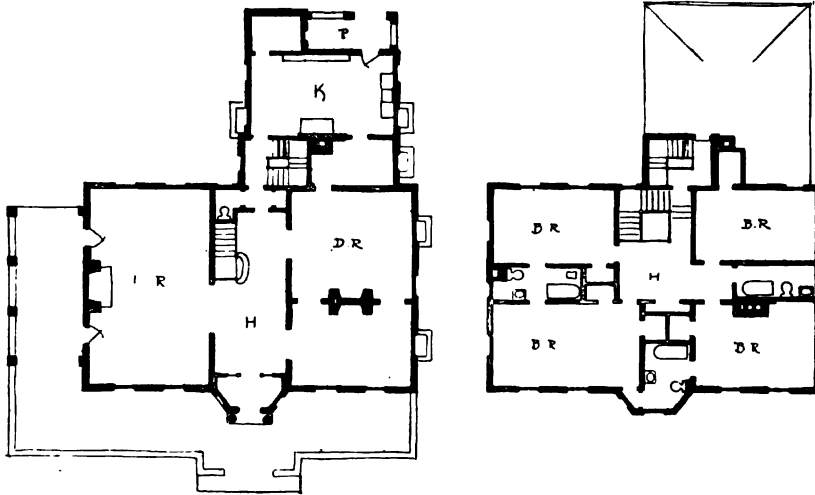
MR. L. R. HYPES' HOME IS NEAR THE WESTERN ENTRANCE.

Barnard & Wilder, Architects.

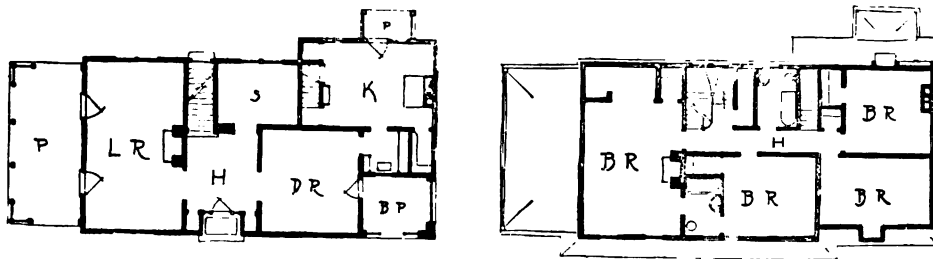


HOUSE FOR MR. F. G. C. LYONS.

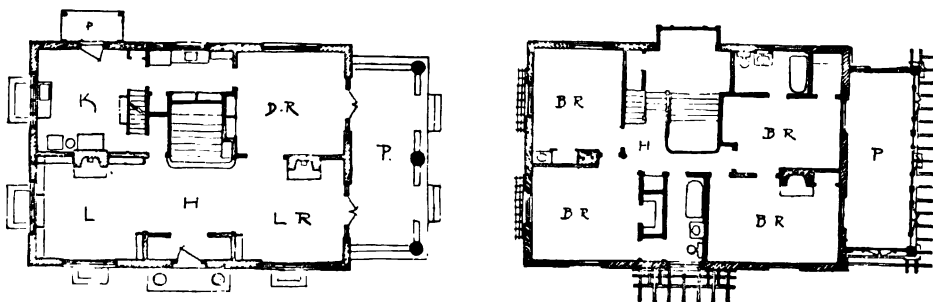
Shupe & Bready, Architects



PLANS OF MR. LYONS' HOUSE.



PLANS OF MR. GALES' HOUSE.



PLANS OF THE HOME OF MRS. WILSON AND MRS. BARTON.



THE HOME OF MRS. J. C. WILSON AND MRS. C. L. BARTON.
Ruth R. Treganza, Architect.



HOME OF MR. GEORGE M. GALES.
Aymar Embury, II, Architect.

FIRE PREVENTION

A Column By EDWARD ROCHIE HARDY

"If." It is an axiom in fire insurance that two classes of dwellings are unprofitable. At one end is the

small inferior dwelling running from two thousand dollars in price to less, while at the other end there is the large dwelling where the value runs above twenty-five thousand dollars. Within a very narrow space of time, less than two years in fact, there has been a series of fires on Long Island of dwellings of the higher valuation. The losses in these cases have been from fifty thousand up to two hundred and fifty thousand dollars. These fires, some ten in number, have called sharp attention to the problem of protection in this type of risk.

The question of fire protection or prevention in this country has suffered very much from the fact that for nearly a century the movement was confined almost entirely to the insurance interests. Its development was largely due to their advocacy of it, and most of the means adopted are the outgrowth of their studies. It is unfortunate that this was so because while it was effective work it probably, to a certain extent, possibly a large one, retarded a general movement for fire prevention. The feeling was strong that the means of prevention were largely in the interest of the insurance companies, and they were the ones primarily to be benefited and therefore the ones to be chiefly concerned in the matter. As a matter of fact the community who pays the bill of fire waste was the beneficiary of a lessened loss, and the companies' benefit was purely incidental thereto. The company could only profit if the community did. It is not a case where the benefit of one was gained without a corresponding benefit to the other.

It is a cause for congratulation that from that attitude we are emerging, and the problem is now recognized as a problem for the community to consider, and one which it is most actively studying.

In the solving of this problem the architect is playing a very prominent part, and is going to play a larger part

in the future, and because of that fact we are venturing to suggest that possibly the time is at hand when there ought to be a fresh consideration given to the planning of the country estate dwelling with a view to a more complete control or elimination of the fire risk.

Let us suppose that it was common in the United States for buildings to be blown down by severe winds as frequently as they are destroyed by fire. If the ten estate dwellings which have been destroyed on Long Island within two years had been blown down by the wind, it is not difficult to see what would happen. Committees would be appointed very promptly among the bodies interested, and immediate steps taken to reform the designing of such buildings for the purpose of overcoming this defect. Now, is it too strong a statement to make that the time has come when we must regard the destruction of such buildings by fire, if it could have been avoided by different planning or designing, in the same light in which we should regard a building so poorly designed that it blew over in a stiff gale?

The estate dwelling is a hotel. Some of those destroyed had as many as seventy rooms, a small hotel you will say, but nevertheless a hotel. Not only was it a hotel in size and number of rooms, but in its equipment for the care of guests, their entertainment as well as lodging, it had fittings which will compare with those of a hotel. Now the summer hotel has been poorly planned, and as we have gradually burned them up we are learning to change their plan. We are learning to segregate the more dangerous portions from the lesser ones, and by this simple means of segregation to insure the safety of both to a very high degree.

Is it any longer necessary that we should continue to use the cellar or basement for the work-shop or the manufacturing department of the home in the case of these dwellings situated in the country? If it is necessary, has the time arrived when an arrangement can be made so that the first floor shall be fire-

proof and be unpierced? If it is to be pierced then it can be by a fireproof shaft passing entirely through the building and opening to the roof protected only by a thin glass skylight which will readily break should a fire enter it. Would not the best arrangement be to put in separate extensions the entire kitchen, laundry, and other services where heat is necessary, having this portion cut off by approved doors from the rest of the property? The objection will be raised that such a means calls for an extension and that cannot be, for such purposes, attached to the estate dwelling as it would interfere with the design of the building. Then cannot these departments be put under ground but not beneath the building? There are many cases where the boiler room of a hotel or apartment house is underground at one side or in the rear, but not underneath the property itself. If this is possible in city properties, and it is done in many cases, how much more feasible ought it to be in the country where the question of land is usually not a matter of consideration? In this way the service portion, which is the hazardous portion of the dwelling, can be completely segregated without losing its efficiency.

Of course, the normal methods now so common of the supply of pails, extinguishers, standpipe and hose, should be provided, and wherever possible sprinklers should be installed. Whatever the objections to installing sprinklers above grade, there are no objections to putting them in the basement portions of the property where the question of disfigurement is not of such large consideration. No one builds to burn, although in many cases it may seem to be so, and, perhaps, a re-casting of some of the old methods may lead almost entirely to the elimination of the burning. Is it not worth trying?

The term "Fireproof" bids fair to disappear. It is more than one hundred years old, and it seemed impossible to dislodge it, and yet the ease with which "fire resistive" appears to be gaining headway makes us believe that the time is not far distant when "Fireproof" will only be referred to as an historical definition of buildings of a cer-

tain type. At the annual convention just closed of the National Fire Protection Association the report of the Committee, which up to this time has always been known as the Committee on Fireproof Construction, came forward as the report of the Committee on Fire Resistive Construction. In connection with the subject of definition they stated the following:

"Inasmuch as certain descriptive terms are used in the Committee's Reports, it has been thought desirable to define those already used by the Committee, to which others will be added from time to time as the conditions require.

"Those already defined are as follows:

"Fireproof.—The use of the term 'Fireproof' is recommended to be discontinued. This general term has been erroneously applied to buildings and materials of a more or less fire-resistive or incombustible nature. Its indiscriminate use has produced much misunderstanding and has often engendered a feeling of security entirely unwarranted.

"Fire Resistive.—The term 'Fire Resistive' shall be applied to all structures or materials which will satisfactorily resist the effects of a serious fire in accordance with the classification given below.

"Incombustible.—A term applicable to structures or materials which will not readily ignite and burn when subjected to fire.

"Non-Inflammable.—Shall refer to material which may burn when subjected to fire, but will not support flame."

The committee also suggested a classification of buildings according to occupancy, and put forth as a tentative list the following:

"To facilitate the future work of the committee, which contemplates drafting standards for each group, all buildings have been classified into three groups according to occupancy, Public Buildings, Residence Buildings and Business Buildings which have been further sub-divided as follows:

CLASSIFICATION OF BUILDINGS ACCORDING TO OCCUPANCY.

Public Buildings.

"This class includes all public service, federal, state, county and municipal

buildings and all buildings in which people congregate for public business, worship, education and culture, amusement, entertainment or social intercourse, or are received, confined or restrained.

"The committee will further sub-divide these buildings, and for convenience of reference submits a list of the buildings included in this group:

1. Public Service Buildings — Railroad stations, markets, armories, etc.
2. Federal, State, County and Municipal Buildings—Custom houses, post offices, state houses, court houses, city halls, police stations, fire houses, bath houses, etc.
3. Places of Worship—Churches, synagogues, temples, etc.
4. Educational Institutions — Colleges, schools, seminaries, etc.
5. Institutions for Culture — Art galleries, libraries, museums, etc.
6. Places of Amusement—Theatres, assembly halls, amusement pavilions, exposition and fair buildings, motion picture halls, skating rinks, etc.
7. Places for Social Intercourse — Lodges, dancing academies, etc.
8. Institutions for the Sick and Infirm — Asylums, hospitals, sanatoriums, etc.
9. Penal and Reformatory Institutions — Prisons, houses of correction, etc.
10. Benevolent Institutions — Orphanages, homes for incurables, etc.

Resident Buildings.

"This class includes all buildings in which people are voluntarily lodged or housed. For convenience in reference the following list is given, which will be further sub-divided:

1. Places for Transient Lodging—Hotels, apartment hotels, club houses, etc.
2. Places for Permanent Lodging—Tenement, apartment, lodging and rooming houses, nurseries, etc.
3. Private Residences.

Business Buildings.

"This class includes all buildings in which business is conducted and which are used for executive administration and for the manufacture, sale and storage of merchandise. This class will be sub-divided, and for convenience the fol-

lowing is a list of the buildings included:

1. Places for Executive Administration—Office buildings, etc.
2. Places for Manufacturing Purposes—Factories, work shops, printing houses, powder mills, grain elevators, breweries, distilleries, slaughter and packing houses, canneries, gas producers, blasting furnaces, foundries, etc.
3. Places for the Sale of Merchandise—Mercantile establishments of all kinds, stores, restaurants, etc.
4. Places for Receiving, Handling and Storing Merchandise—Freight stations, docks and wharves, car barns, stables, cold storage and warehouses, etc.

The Exit. Since the three prominent fires involving a loss of life, the Iroquois Theatre, the Collingwood

Schoolhouse and the Asch Building, the question of exits has received almost paramount consideration, to the exclusion of other problems in connection with the saving of life. The best judgment has now come around to the view that the quickest means are afforded by the horizontal method, with suitable stairways or other means of descent either side of the partition or division wall. Without question a larger number of persons can be moved more readily from one side of a building to the other than they can be taken down the stairs, fire escape, or the smoke-proof tower. The plan is simplicity itself. There would be a division wall separating the loft into different portions; this wall would be protected by self-closing, if not automatic, doors. If a fire originated on either side the employees would pass to the other, then down the exits and out of the building. It must be borne in mind that the proper exits must be provided; the mere division wall of itself is not enough, but there will not need to be the sacrifice of space which at first seemed necessary if this first aid, as we may call the division wall, is properly adapted to the conditions. This division wall was put first in the suggested means of exit in the committee's report at the National Fire Protection Convention.

Edward Rochie Hardy.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

Volume XLVI

JUNE, 1914

Number 6

Our Ambassador to London, Mr. Walter Page, recently entertained his audience at a dinner with an account of the troubles which his business is heir to. He said there were too many publishers, too many books, too many people making and selling to unwilling purchasers the machinery wherewith to make more books and make things worse. He attracted some notice, partly because he has reached a position where anything he might say attracts notice, but I think the reason was more—much more—that he lives in a world where people do more than their share of reading and—shall I say as a consequence?—more thinking.

In my world few read and none think—the more's the pity.

If there were no newspapers and few books and only one or two magazines, and those short and to the point, we should have a different state of affairs. But the newspapers are here to stay and I suppose people will go on for two or three centuries more reading the sporting news and the stock quotations—no, I mean the automobile advertisements and circulars of those designing psychologists who sell truck with which to cure the ills—I mean add to the efficiency—of the tin horse—some call them automobiles—which, now that Mr. Henry Ford has been properly advertised, is getting to be the sole care and thought of every well organized human being from Maine to California—maybe I should say from Alaska to Patagonia.

That entertaining writer whom I quoted last month probably spoke for himself only when he said that people read nothing beside the sporting news and the Stock Exchange quotations. Of course he may spend all his money gambling on the stock market, but if so he is an exception which proves the rule.

These are deadly dull times, not only for the publishers and makers of books, not only for the builders, but for others.

You know it has been demonstrated that in average times people buy 40 per cent. in excess of their requirements, even sugar and bread. It is this extra 40 per cent. that makes the profit for the merchants, like the strap-hangers who pay the dividends of the street railways.

A large jobber of food products noticed the falling off in his business with great concern. He visited around among his fellow business men and they compared notes and it was found that the reason why people did not buy from them their full quota of provisions was not because they were trading with somebody else, but because they had cut down their needs. Three things these merchants discovered were getting all the money—moving pictures, talking machines and automobiles.

All these things are the fruits of the Tree of Knowledge.

Wise Ben Franklin had practically a monopoly of the newspaper business in this country a hundred and fifty years and more ago. He was publishing an annual which was about the only new reading the people got hold of from one year's end to the next. There was nothing else except the Bible to read and the Bible I presume was memorized so that it didn't have to be read. In those days reading Franklin's stuff and nothing else year after year made hardheads of them all. Independent, taught to think, they knew enough, when the time came, to throw off the British yoke and this Free Nation is the result.

And now that Freedom which George Washington and Thomas Jefferson and all those grand old boys grew so enthusiastic about that they risked their lives and comfortable fortunes for it—that Freedom has gone wild and we **MUST STOP AND THINK**, to see the effects of it, to study them and analyze them and find out what to do.

The whole world is being turned upside down. The old Money King was the merchant—many of them; then he was the Stock Exchange man—fewer of them; now it is the Automobile King, and only two or three of them, and any one might be dethroned over night.

The time is coming when there will be none of these kings—they will be unmade in their making, and the biggest men in the community will work for a salary, like the mayor of the city, for instance, or the managers of railroads and of other great corporations. There will be lots of them instead of a few.

Publicity will have done this, too—the newspapers, magazines, the printing press—universal education.

History keeps on repeating itself. There is the System, made up of the favorites who take things as they find them and try to prevent their changing. There are a few far-seeing ones who know that things must change, who know that the light must penetrate to expose the inner workings of the System, who are idealists and who know or think they know that the System could be improved and everybody be happier. These idealists, or prophets, in the old days were destroyed by the powers in control; nowadays they get a hearing—at least.

Two men of this kind have been chosen as Presidents of the United States in recent years.

Theodore Starrett.

ARCHITECTONICS

The Seats of the Mighty by Tom Thumtack



I was over at the Rams' Club for luncheon a while ago and ran across Jack Shrewd. You will remember that he used to be the designing half of Schuyler and Shrewd until he married Janet Billings, and old man Billings insisted that he go into the prosperous Billings Floor Company to learn the business and continue it after Angina Pectoris had dropped the snuffer on the old man.

I knew Shrewd well, because I had appreciated his architecture and because I used to play little parts with him in the Ram's Barnbutting Tours. It takes a mask of grease paint to becloud a man's features and reveal his soul. Jack was wrought up and began to give vent to a tirade on what he called the snobbishness of the architect's back door. You see, he now has to present the value of the Billings-Shrewd Floor-system to his quondam brother architects who have forgotten his own professional career or even that he ever had an architectural career at all, so that he is on exactly the same footing as the regular advertising demonstrator. You should have heard him rant.

"Why, Tom, you know how much the average architect earns, or doesn't earn. My clerks get more. But I've had the littlest of the little break six engagements with me hand-running. I've had the very men whom I used to despise as my professional copy-cats, insult me through the office boy. I've had to conduct business with his keyboard Sadie instead of the architect who has to stand off the landlord as many months of the year as you can eat oysters. I've had to talk business with Whippersnapper of Dinky and Whippersnapper while he put on his gloves going down in the elevator. I've been instructed in floor construction from the planking in the ark to the fireproofing of Hades by little Archie Teck, waste-product of a correspondence school. I know you're not that kind, Tom; in fact, I've waited for you often while you heard a man through his story, but then you are bigger and more intelligent than the average practitioner and realize that a man must learn the new things somehow or fall into a rut and that when a vitally interested expert will tell him first hand all about it, it's the quickest way to get a strangle hold on a new idea."

Now I know Jack like a book and it seemed to me that he was just a little unfair in the way he gave his adverse verdict on the architect's interest in processes and materials. You know Jack was a bit high-handed himself when he was an architect, not only with the stranger without his gate but even with the draftsman within. He had been an architect more years than he has been a manufacturer and has never entirely lost that point of view. He was always restive under professional criticism when in practice and you can realize how the caste distinction which the profession sets up against the manufacturer would gall an erstwhile architect.

"You're all wrong, Jack," said I after thinking it over. "You go around to your former compatriots with your head loaded with information, but your shoulder loaded with chips. You forget that you are no longer an architect and when all's said and done are but a manufacturer asking favors of architects, asking the boon of a specification * * *"

"Asking nothing! Tom. I'm simply trying to gimlet those bone-heads so I can let in the bright light that times have changed since Kidder wrote his Pocket-Book. I'm not asking favors, I'm doing favors! I'm bringing to their very doors the extra edition of to-day's best construction achievements. I'm trying to make them worth at least part of the commission they get from those unsuspecting victims of misplaced confidence who vainly imagine that they are getting modern building assistance from a lot of crack-brained stand-patters. I've got a real message for everyone of them. Lots of the other men who visit their offices with models and literature have a message for them, also. They ought to be anxious to be informed. They are all accused of being impractical, and justly so; and demonstrators could make them practical. We bring practical things to their very offices to show them how they work. Do they learn?"

Why, they won't even see us. They won't find out how a new screen works until a mosquito drills Mrs. Big Client's epidermis. A child, an Indian, or a scientist would beseech us for a look. An architect won't even read our cards. Every other class of men investigates new things. When they put a mule in a cage and lower him into a subway excavation with a windlass and boom, all the seven ages of man look into the matter. When they put a man through the air-lock of a foundation caisson, the average passerby will stop long enough to learn all about it. He'll take a lesson from that observation to store in his brain.. How about your architect? Send me around to tell him about his brother mule and he'll throw me out of his office. Send me to explain an air-lock and he'll bawl me out of his place under three atmospheres' pressure. I know you'll say that the subway people aren't trying to sell the mule, and the Foundation Company isn't trying to sell the sand-hog to the innocent bystander—so he has no suspicions of the instructor's self-interest. Well, I may be trying to sell them a floor but they don't have to buy it and they can get the information free gratis for nothing by giving up ten minutes' time. When a shopper spends her time before a beautiful window display, she doesn't have to buy it. She can find out just how much stocking Anthony Comstock and Fashion will let her show a policeman without buying the slit in the skirt or the stocking to fit it. You architects either haven't got anything to learn with or else it's too full of vanities to leave space for realities."

"Hush, Jack! You're disturbing the peace of the Ram's Club. You charge into architects like a bull in a china shop instead of pulling yourself gently in on a handshake. What if you do think your quondam associates arrogant, can't you be persuasive? Can't you flatter and wheedle and charm and convince? Why any commonplace man can do that much, but you can't, and you are an actor!"

"You're an actor yourself, Tom, old Top! Do you for an instant imagine that you could take along Mona Lisa herself and with it under your arm tread the boards of the average architect's office, pass the office boy, cajole the telephone girl, convince the specification-writer and manager and finally finish the play by the royal finale of actually showing the picture to the King on his Throne? Then cheers, exit, curtain! I'll tell you what, Tom, I'll bet you a dinner here at the Rams' Club with champagne in Ram's horns of plenty that you can't disguise yourself as a demonstrator and get two architects out of five to see our next exhibition in New York City. I'll authorize you to offer to give away a thousand feet of my construction to the first of their clients to use it and put in the rest at cost. All names taken at random out of the New York catalogue except one which I'll name arbitrarily. That's a fair test of your arguments in favor of your broad-minded profession. Come, sir, you're an actor. You are a suave, foxy old cuss and you know my subject as well as I do myself and you know that architectural nature with which you must deal. You know that what you will present is a good thing, which has the right kind of a company behind it to further the archi-

tect's interests. In short you are honestly convinced that you come bringing a message that these men ought to hear."

"Done! I'll take you! I'll round up all five!" accepts sporty Tom Thumtack.

Jack got a New York catalogue in which the names were all numbered, and nominated number thirty-nine. I took three, thirty-three and three hundred and thirty-three and the last number. Jack triumphantly announced that I 'had drawn Best, Drake, Foster, and Western and Black while he had nominated Edson. We arranged to meet at the Rams' at 7.00 P. M. that day week, and each of us feeling sure that the other would be wrong and have to pay for it, joined in selecting the menu of an elaborate dinner. Before we got through it had run to a point where it would certainly make me work and Jack pray.

He attended to my make-up for the part. I am a tall, gaunt person and of late years have been clean-shaven and careless in dress and deportment. Jack said that he was letter perfect on the proper dress for impressing and as we knew from previous plays that we are of a size, he suggested that we simply change clothes. I was anxious to win my dinner that very day and wanted to use the next hour to talk to Best. Jack took me down stairs to the barber and sacrificed my unkempt ambrosial locks on the altar of advertising, then made me up, and I took his literature and set out on my journey.

My first man was Best. I called up his office boy and said that I was the office boy at Carrere & Hastings and wanted to talk to him about forming a bowling league. Would come right up to see him if his boss wasn't in. "For Mike's sake wait an hour, the boss is here now and won't leave until three!" Thus authoritatively posted on Best's whereabouts I went right up to see him. As you all know he is a short, swart, thick-wristed Italian-looking man, with short, crisp hair and manner. To my surprise the office boy to whom I had just been telephoning, took one look at me, asked me if I know Mr. Best, personally, and on a negative answer said, "Mr. Best isn't in! Give your spiel to Mr. Anthony." "My business is with Mr. Best," I explained after one glance at the vindictive chap who pricked up his rat-terrier ears at the first mention of his name. Gus didn't know when Best would be in that day, didn't know when he would be in the next day. "Better shoot the bull to Anthony," was his confidential tip.

The afternoon that I had intended to devote to a friendly instruction of the fascinating Mr. Best seemed quite free for the conquest of other worlds. To make a long afternoon short, I'll say that the truth of Shrewd's prediction was more than demonstrated by the next hour's experience. Not a single principal would see me. One man was busy doing nothing in plain sight. Western referred me to their specification writer who was majestically unconcerned. I was sore and desperate. My soul hadn't been so harrowed with disappointment since I pounded the pavements for my first job as a draftsman. I had

never since been made to feel so sharply the bitterness of my insignificance.

Just as I got to Mr. Edson's there came in a man with "Client" written all over him. There was an obsequious rush and scuffle to announce him to the boss. This made me bitter. Here I had a newly-invented floor construction, of interest to every up-to-date practitioner and I was authorized to give the client of the first listener three hundred dollars' worth for nothing and not one of my five would so much as hear me. The only man they would see was a client. The comparison between his reception and mine wrenched my mind, tortured it, and bred in it a new idea. I was acting a part, anyway; I'd act a double part. I was an architect acting demonstrator; I'd act the part of client also. So I collected a new make-up.

First I tried Best—Mr. Dominee, a client for a new school wanted to see him. That got me into the biggest chair in his library. From his private cubby-hole office right-upper entrance, waddled John Best with his confident lip-smile. There undoubtedly was something compelling about him. He was certainly clever, but I knew by reputation that he was only a bluffer. He had never built a regular school, but had done a building for an art center. When I said I wanted a private collegiate school he immediately created the impression that it was his specialty. Asked about Shrewd's floor construction after giving a little hint that I liked it, he gave me a fluent discourse on floor construction and it took a really close dissection to find that he had tactfully omitted to say that he had ever used a Shrewd floor and a deeper inspection to find that he really knew nothing about it. I mentioned that I went to college with Shrewd and that he had invited me to see his exhibition the following Friday but that a motor-trip would prevent my attending. On my return I would call again on Mr. Best. I tried the same tactics on Western & Black, and it was harder to get out of Black's clutches than out of a Bowery haberdasher's. Yes, he knew the Shrewd construction, had just put in a similar one in the High School in Pittsfront. Used to do a thing like the Shrewd when he had charge of McKim, Mead & White's. Where was my school, etc., etc., etc. Had intended to take in Shrewd's demonstration. Foster was out of town. Office manager most solicitous. Would telegraph Foster immediately. The plan was working so well, I told him not to bother. Just mentioned that I wanted to use Shrewd's floor. Office manager said he had intended giving himself the rare treat of attending that demonstration on Friday.

I hadn't had a first chance at Edson and since I had tried all the others, I thought in all fairness he ought to get an equal chance at my three hundred dollars in my original role of plain demonstrator! His office made me write my name and business on a card and, wonder-of-wonders, Edson would see me. I found a tiny man whose face gave the impression of a Howard Pyle pirate. His manner was alert and punctilious, but gave me an uneasy impression of snobbishness. But I assumed my most conciliating address and told him that I had seen and admired his work; thought he was progressive—"Yes! Yes!"

snapped Mr. Edson apparently seeing the glimmer of a great light, and "I wanted him to see my new construction." "What? See your new construction! Are you taking up my time trying to get me to specify something! I won't take it up with you at all. I'm busy! Get out! George!" he shouted, as he tore out of the room. "Show me that card!" There he read the words "about new construction." "Damn it all, George!" I heard him sputter. "I thought he was a client who wanted a new building!" "You're the worst of the lot," I said to myself as I went down the stairs. "I know I could work you so well with my great client act that I won't take the trouble to try it."

On Friday I went to Jack's demonstration in my own proper person. Awaiting him were the three architects and Foster's head draftsman. I had won my dinner. Best made the strongest impression, Drake seemed very solicitous. The head draftsman was the only man who was really sincere. The others were only memorizing their impromptu speech to spring on Mr. Dominee. Shrewd was non-plussed but delighted.

That night at the Rams' Club our little table was a beautiful picture. Nobody else has the art of our chef and the Rams pride themselves on the way they set the stage and the table. Two pastmasters had chosen the viands and my mind was relieved anew every instant by the thought that it was Jack who was paying. When we were almost through and very happy, Jack asked me about the four who had attended the demonstration. I thought best to disclose my client bait which had landed all the others, but expatiated on my reception at Edson's, his mistake and then his rude dismissal. Jack seemed vexed during the telling of my client trick, but when I got through with Edson he began to laugh in a way which would frighten wild animals in a menagerie, but passes at the Rams' Club unnoticed. When at last he got breath enough he just shouted, "Edson wouldn't look at my floor! Why, Good Lord, man, he invented it!"



NEW TERMINAL OF THE CENTRAL R. R. OF NEW JERSEY

By M. R. C.

Without pomp (I shall omit the mention of the ceremony) and also without nation-wide advertising, we have a new railroad terminal at the entrance of New York which is as useful for its purpose as either of the giant constructions of world-wide fame which in the last few years have been built on the island of Manhattan. The Central Railroad of New Jersey in building its new terminal seems to have exercised much ability in building just a plain terminal, sufficient for its needs, commodious enough to handle all the traffic, and cleanly in appearance, we might even say beautiful, without a vast expenditure for expensive materials expensively wrought. This road has not laid itself open to destructive criticism which has been courted by the Pennsylvania and New York Central in building their vast approaches to the metropolis, at a cost of hundreds of millions. True, the terminal is on the Jersey shore and connection with New York is made by ferry to be later supplemented by a tube connection. Nevertheless, it is the general finish of the building which causes our comment. The structure, which is largely new, surrounds and supplements the old station, the general waiting room of which remains, forming as it were a nucleus for the new structure. Pleasing in appearance throughout, yet this building was built without an architect. From that it

must not be inferred that it just grew, for it was in the hands of a capable engineer, Mr. Joseph O. Osgood, who is on the railroad staff. Engineers, however, who design buildings supposedly of an architectural character, are generally considered at the present time incompetent to perform the duties of the architect. Here, however, we have a frankly simple piece of designing which has good architectural proportions and looks—well, to tell the truth, very much better than many a vaunted architectural creation.

The traffic facilities of the station are direct. Ferry traffic comes into four slips, the vehicles pass into a lower concourse running the length of the slips, while the majority at least of the passenger traffic is taken off from the upper decks of the boats by bridges at either side leading directly into a passenger concourse which extends the width of the building. From this concourse inclined ramps on either side lead down to the train concourse and in the center a stairway leads to the general waiting room. Right and left of the general waiting room, which is the remodelled waiting room of the old station, are other waiting rooms and the restaurants. Without these rooms the train concourse extends the width of the building and gives a wide and commodious approach to the trains coming in on 20 tracks. The train shed is of the Bush type, now recognized



as the most useful and comfortable terminal design where steam locomotives are used. With heavy traffic to and from Philadelphia, a train every hour, on the hour, in each direction, and in addition the numerous local train service to nearby points in New Jersey, there is no confusion of traffic nor crowding within the station. It is ample for its present needs, and the construction of the building is such that it may be extended and enlarged to meet future growth at any time without disorganizing the present plan.

The Umbrella Type of Train-Shed.

The umbrella train-shed, constructed of concrete and wire glass eliminates practically every one of the weaknesses of the old wide-sprung steel arch structure. It is well ventilated and the smoke and gases find their way at once into the open air.

It is all but immune to deterioration, and such maintenance as is necessary is carried on with the greatest ease.

It gives an abundance of daylight to shed platforms and car windows in all conditions of weather.

It is well protected from the weather and admits but a minimum of rain and snow upon the platforms.

It can be built cheaply and rapidly, and with a minimum of interference with traffic conditions.

It can be enlarged indefinitely without disturbing the architectural harmony.

All these essentials of a good train-shed were lacking in the old type. Smoke and gases from the engines poured out into the interior, cutting off the light, poisoning the air and causing rapid corrosion of all the metal members. On account of the span of the roof arches, any other protective covering than paint was impossible, so corrosion was rapid and constant. Skylights were high up, of small area and hard to keep clean. This made recourse to artificial light necessary. With its high vaulted opening at one end, little protection was offered from storms coming from that direction. By reason of the area enclosed, the cost was very high for a structure designed to carry only its own load. It could only be enlarged by building a new shed more or less like the first. The umbrella shed remedies these defects in a simple fashion, and can be built for from 40% to 50% of the cost of the arch shed for the same track area covered.

But one thing, however, has made the new type possible, and that is wire glass. With the large skylight area, it was essential that the danger from falling glass be eliminated absolutely. Experience in installation shortly developed a wide difference in the behavior of the various kinds of wire glass on the market, with the result that continuous process solid



TERMINAL OF THE CENTRAL R. R. OF NEW JERSEY, JERSEY CITY, N. J.

Builders: Charles T. Wills, Inc.
Sheet Metal Work & Roofing: F. John Seton, Inc.

Joseph O. Osgood, Engineer.



TERMINAL OF THE CENTRAL R. R. OF NEW JERSEY. TRAIN SHEDS.

Pennsylvania Wire Glass Used.
Erected by R. P. & J. H. Staats.
Train Indicators: National Indicator Co.
Painting: Frank Williams.

Puttyless Skylights: National Ventilating Co.



TERMINAL OF THE CENTRAL R. R. OF NEW JERSEY. UPPER FERRY CONCOURSE AND
UPPER BRIDGE APPROACH.

Tile Contractors: Wm. H. Jackson Co.
Concrete Floors: Denton & Co.
Steel Windows: David Lupton's Sons Co.



TERMINAL OF THE CENTRAL R. R. OF NEW JERSEY. WAITING ROOM. TRAIN CONCOURSE.

Pennsylvania Wire Glass.

Tile Contractors: Wm. H. Jackson Co.

Plumbing Contractor: Daniel W. Lenahan.

Steel Windows: David Lupton's Sons Co.

Painting and Decorating: Frank Williams.

Puttyless Skylights: National Ventilating Co.

Train Indicators: National Indicator Co.

Electrical Contractor: Albin Gustafson Co.

wire glass has been used in every recent structure of this character both here and in Canada. The experience of the Lackawanna Railroad in Hoboken was largely instrumental in this decision. The glass used when the station was erected was of the sandwich or two-sheet type, and after a few months, this showed such a large amount of crackage that the experiment was tried of reglazing one complete section with solid wire glass. This has proven so eminently satisfactory, after two years of service, that when the station is reglazed this type will no doubt be used.

The firm of Charles T. Wills, Inc., were the builders of this new terminal, while R. P. & J. H. Staats erected the

train shed. The skylight area of 116,000 square feet was installed by the National Ventilating Co., being their puttyless multiple unit system. The sheet metal work and roofing was done by F. John Seton, Inc., and the steel windows were installed by David Lupton's Sons Company. The twenty train indicators are of the type made by the National Indicator Company. The tile contractors for the tile, wainscoting, etc., were the Wm. H. Jackson Company, while the concrete floors in the ferry house and concourse were laid by Denton and Company. Frank Williams did the painting and decorating. Daniel W. Lenahan was the plumbing contractor and Albin Gustafson was the electrical contractor.



YOUNG MEN'S CHRISTIAN ASSOCIATION, WATERTOWN, N. Y.

Brick: Cary Brick Co.

Electrical Contractor: Dennis G. Brussel.

Jackson & Rosencrans, Architects.



WEBB HORTON MEMORIAL CHURCH, MIDDLETOWN, N. Y.

Builders: Miller-Reed Co.

Terra Cotta: The South Amboy Terra Cotta Co.

Reinforced Concrete Floor System: Arthur Greenfield, Inc.

Carrere & Hastings, Architects.



WEBB HORTON MEMORIAL AUDIENCE HALL. CLASS ROOM.

Builders: Miller-Reed Co.
Ornamental and Plain Plaster: Jacobson & Co.
Interior Woodwork Manufactured by the Peck Lumber Mfg. Co.
Sectionfold Partitions: The Folding Partition Co., Inc.



WEBB HORTON MEMORIAL. LADIES' ROOM. GYMNASIUM.
 Lining of Swimming Pool: American Enameled Brick & Tile Co.
 Gymnasium Equipment: Hanford & Horton Co.
 Grant Overhead Pulleys.
 Concrete Floors: Denton & Co.



THE HARRIET JUDSON YOUNG WOMEN'S CHRISTIAN ASSOCIATION, BROOKLYN, N. Y.
Builders: Edward Corning Co. Frank Freeman, Architect.



HARRIET JUDSON YOUNG WOMEN'S CHRISTIAN ASSOCIATION.
RECEPTION ROOM. RESTAURANT.



BIRD'S-EYE VIEW OF BUSH TERMINAL.

THE NEW BUSH TERMINAL PIER

By R. E. IRETON

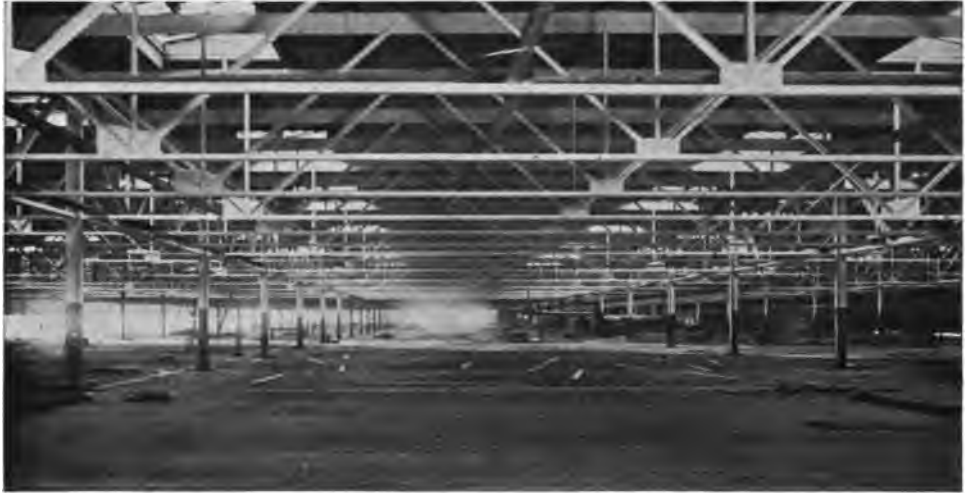
In view of the completion and approaching operation of the Panama Canal, our principal seaports, from Boston to New Orleans, are making preparations to take advantage of the opportunities for increasing their trade volume with the west coast of South America and with the Orient. The shorter routes through the Panama Canal give promise for the development of important trade relations with the Far East and with South America, heretofore not possible; and wideawake seaport communities in this country are preparing to improve the coming situation. Among these Brooklyn must be numbered. At the Bush Terminal, the world's model freight and factory city, on the Brooklyn side of New York bay, there has recently been completed a pier of titanic proportions. Nowhere in the world is there a pier approaching this in size or capacity. The structure is a huge 2-story undertaking, 1,400 feet in length, more than 50 feet in height and 270 feet in width. Its

two floors comprise almost 15 acres of space, and the largest of the great Chelsea docks in the North River, Manhattan, could be stored away in one corner of this immense structure without the slightest interruption to its operations. The pier's construction involved an expenditure of \$1,000,000 and consumed 7 months' time. Fully 400 men were employed in its erection, and all records in pier building were broken by them. The entire work was supervised by Mr. Clair Foster, one of the Bush Terminal Company's vice-presidents. William Higginson was the architect.

The foundation piles for this mammoth structure were driven 30 feet beneath low water and sawed off just below the surface. They are grouped in lots of 10 to 30 and capped with concrete hoods, measuring 11 feet each way. On these the steel columns supporting the superstructure are set. Wherever possible metal has been used. On account of the heavy trucking that the main floor of the



REINFORCED CONCRETE FACTORY BUILDINGS AT THE BUSH TERMINAL—140,000 SQUARE FEET TO THE FLOOR.



THE UPPER STORY OF THE NEW PIER.

pier would be subjected to, considerable care and thought was given to the selection of the material for the wearing surface. The floor, covering about 30,000 square yards, is paved with asphalt blocks manufactured and laid by the Hastings Pavement Company. The asphalt blocks present a smooth, noiseless surface, not affected by extremes of temperature and capable of withstanding the

grinding and hammering effect of traffic. Each block is 5 inches wide and 12 inches long. They are sanitary and non-absorbent and are laid on a $\frac{1}{2}$ -inch mortar bed and concrete foundation. On the upper floor, over the steel girders, there is a 4-inch rough flooring covered with 5 overlapping layers of heaviest tar paper, 1 inch of yellow pine planking and another inch of maple on top. Melted tar is



THE LOWER STORY OF THE NEW 1,400 FOOT PIER.

Asphalt Block Floors: The Hastings Pavement Co.
 Electrical Contractors: Kelting Electric Co.
 Evans' "Crescent" Expansion Bolts.
 Rolling Steel Doors: Jas. G. Wilson Mfg. Co.
 Sprinkler Protection: "Automatic" Sprinkler Co. of America.

William Higginson, Architect.



THE NEW BUSH TERMINAL PIER WITH NEARLY 19 MILLION CUBIC FEET OF STORAGE SPACE.

Galvanized "Royal" Ventilators.

William Higginson, Architect.

worked into the seams to make the whole waterproof and airtight.

Every inch of floor space on this pier is available for use. A double track railway traverses the middle of the lower floor. There is a half mile of single track on the dock and a complete system of switches, signals and crossovers. This track connects with the Bush Terminal Railroad, which in turn is linked to the trunk systems entering the port of New York.

Entirely of fireproof construction, the pier is equipped on both floors with a modern automatic sprinkler system—a feature of all Bush buildings and piers. The slips adjoining this pier have been dredged to a depth of more than 40 feet, so that trans-Atlantic liners can be accommodated without difficulty.

Seventeen steamship lines are berthed at the 7 huge docks of the Bush Terminal, plying between New York and all known quarters of the globe. The freight handled by these steamers is something enormous. The steamship company which has leased the new pier plans its new sailing schedules so that three ships will always be at the pier. As each of these vessels brings in 10,000 tons of cargo and leaves with a like total in its hold,

more than 1,500,000 tons of freight will be handled annually on this new pier—the heaviest total, as far as reliable statistics establish, ever handled on any pier in the world.

The Bush Terminal has 10 industrial service buildings, all of reinforced concrete, 130 warehouses, 25 miles of railroad track, a completely equipped railroad yard, 7 great covered docks, a flotilla of barges, car floats, lighters, tugs, etc., for the movement of freight in heavy volume.



DIRECT FREIGHT LOADING PLATFORMS AT EACH FACTORY BUILDING.



PROGRESSIVE ARCHITECTURAL CONSTRUCTION

By FREDERICK SQUIRES

Plate VI. Standard Houses of Poured Concrete

In the second article of this series was brought to your attention standard houses of precast concrete. At that time it was stated that there were two general methods of producing standard results and this is a description of the second, the concrete cast in forms on the job. Mr. Atterbury showed a method by which houses were constructed of concrete units made in factories, the arguments in favor of which were preparedness and uniformity of material. The difficulty that the units were larger than could be man-handled was overcome by the use of a derrick. The present article treats of concrete buildings cast in forms in place.

Both systems have to combat wooden frame construction and it would be useless to claim that they are cheaper than this insidious competitor. Mr. Atterbury reduces the first cost largely when the number of houses are increased and the present system, through the use of permanent steel forms, makes for economy in the fact that these forms may be used over and over again. Although Mr. Edison is the most widely heralded advocate of poured concrete, another, Mr. Milton D. Morrill, has built more houses.

The first large group of houses to be built by this new method is a concrete village at Nanticoke, Pennsylvania, where

a railroad has erected forty model concrete dwellings to house the operatives of their coal mines. By building these houses wholesale and with modern methods it was possible to give their tenants modern sanitary houses having little or no expense in up-keep at a low rental. The rich can afford to live in frame houses in spite of the constant expense of painting, repair and insurance, but the poor can afford only unburnable, everlasting habitations.

It is quite possible that in the near future this new method of home-building will be brought to a point where any man may build a permanent house at moderate cost, but at present the economy is found where groups of houses can be built contemporaneously and where the same steel forms can be used over and over again. But this does not necessarily involve a uniformity of design.

At Nanticoke all the houses are of one mass, but it may be remarked that their appearance can be delightfully varied at a very slight additional cost by use of special forms to produce decorative effects such as friezes. A group of California bungalows built by the use of this system makes a striking contrast in appearance in comparison with the usual frame dwellings. The inventor of the

particular type of construction here described was for many years a designer for public buildings for the Treasury Department at Washington. Through men of similar training, it will be possible to place concrete on its proper footing along side of materials which for ages have had the benefit of the attention of trained artists. The reason why concrete is now generally considered to be the particular province of the engineer is merely because the engineering efficiency was discovered before its artistic qualifications. It is my hope that in a measure through this and other articles in this series,



concrete already tested by mathematics may hereafter takes its proper place as a fitting mode of expression for design.

This new form-system was developed to produce more permanent buildings at less expense than had been customary and, together with accomplishing this, Mr. Morrill has succeeded in designing houses of economical plan and straightforward design. It may be remarked in passing that here is another man who has come to the conclusion that a flat roof is the only possible construction characteristic of concrete and one has only to look at the large picture of the single building to obtain the impression that this building is architectural and that a very trifling increase in expense would have given it an opportunity to be artistic in a high degree. It is a mooted question how long it will be before public taste will be educated to a point where beautiful flat-roofed buildings will be accepted without criticism. Owing to the superior strength of reinforced concrete,

wall thicknesses can be materially reduced. For two-story houses six-inch walls have been used and for bungalows four-inch walls are ample. These walls in most cases are furred just as they would have to be had they been made of stone or brick in order to provide a space to insure insulation against rapid changes in temperature.

The houses at Nanticoke are double houses such as are so usual in English model villages, and these particular buildings consist of a main floor, with living room, dining room and kitchen, and four bed rooms above. The walls, floors, partitions and stairs are of concrete, the only woodwork being the windows and doors. Such interiors may be flushed with a hose and then scrubbed. The children can build bonfires without any worse results than a little smoke and a big spanking. A waste product (cinders) was used throughout for the concrete which gave a result very light and amply strong. Owing to economy in construction and up-keep and the use of a waste product in the concrete itself this particular group of houses was so economically constructed that the owners were able to rent them for eight dollars a month.

The steel forms employed in this method are made up of flanged plates keyed together and secured through the wall by a pipe spacer. These plates are set up with two tiers connected by hinge-arm attachments, so that as soon as the upper trough or space between the inside and outside forms is poured full of concrete and has hardened slightly, the wedges are driven out from the lower tier and this is swung up by a hand-over-hand motion and successive layers are poured. In this way a comparatively small amount of steel forming is required for buildings of any type. The plates lap past at the corners so that they are adjustable to buildings of all dimensions.

The sanitary character of these poured concrete houses is apparent, as they are germ-proof in the strictest sense of the word. It is being recognized by the medical profession that it is next to impossible to eradicate disease germs from the usual type of buildings when once

these have become infected, and the International Congress for the Prevention of Tuberculosis, held in Washington in 1908 awarded to Mr. Morrill the first gold medal on his work in thus producing disease-proof dwellings.

These houses show particularly what may be done in permanency and economy of structure and show how interesting in appearance are such constructions reduced to their lowest terms. Starting with them as a basis it is easy to see by selecting the aggregates and ornament with what facility they may be beautified. What heretofore has been accomplished by the expensive process of stone carving may be readily approximated by liquid poured into a properly designed

form. Friezes and the under side of the cornice soffit may be similarly decorated. Ornament by means of ceramics is the easiest thing in the world to produce. The building goes up in long horizontal lines. This would argue that the decoration should also be horizontal and horizontal decoration has always been the basis of design. The exterior of the wall shows the form of the mold or aggregates may be shown after the wall has been scrubbed with a brush. I remember a building in the Adirondacks where coarse forest leaves were put on the inside of the molds and the resulting impressions on the concrete when the molds were removed were extremely delightful.



A POURED CONCRETE BUNGALOW IN WASHINGTON, D. C.

PROGRESSIVE ARCHITECTURAL CONSTRUCTION

By FREDERICK SQUIRES

Plate V. Concrete Tracery*

A good many years ago when the Church of St. Luke's was built at Roselle cast concrete was used for the decoration, both interior and exterior. The building shows long horizontal courses on the outside as well as a little isolated decoration. On the interior concrete was used to better decorative advantage. The building was of red brick, both inside and out, and cast concrete was used just as would have been cut stone except more freely. The general effect was good, although I have no doubt a good deal of the detail to-day could be criticised on account of its coarseness.

I have seen this stone used to good advantage for architraves of windows and doors in Tudor houses, such as the Foster house at New Haven, and it has been used to more decorative advantage in the Gothic buildings of the new West Point. It is a curious fact, and one which I cannot yet explain, that it seems to have taken hold more in Gothic than in Classic work. One would naturally suppose that the greater ease with which detail can be followed in concrete than in stone would lead to the use of concrete in classic designs where the modelling is all important. Take the classic bank in Flushing by York and Sawyer; it would be hard to imagine a more successful use of any material. Yet it has few companions.

The bugbear of the Gothic designer in work where the cost must be kept low has been the difficulty of obtaining delicately moulded masonry tracery on account of its prohibitive expense. It is here that to my mind concrete has made its greatest artistic advance. At West Point, in the Russell Sage Memorial Church, the Presbyterian Church at 114th St. and Broadway and in the particular subject

of this plate, tracery has been successfully handled in concrete. In the building shown in the plate the material of the exterior was stone and, as I understand it, all the moulded masonry was concrete. The work was done by the Economy Stone Company at New Haven and I went up there to study the process of manufacturing it. The office of the company is a very good building by Cram, Goodhue & Ferguson, but the masonry is of course of very simple character.

The architect's drawings are taken into the company's own drafting rooms in the usual process of manufacture and most accurately full sized and the piece also is shown in isometric. These drawings are then taken to the model shop where the molds are made in wood. I think the secret of the perfection of all this work is in the way these molds are made. They are all cut from solid plank and secured in a way that seems ridiculously powerful until the next step of the process is seen. After the form has been made it is taken into the pouring room, where an ordinary stationary concrete mixer is at work and from it they are filled with concrete of the usual consistency, which is rammed with an amount of force which would destroy the average mold. The wooden forms stand this and keep the outlines of the resulting stone perfectly true and the material extremely dense, overcoming the main difficulty of lighter forms, that of spreading when rammed. The things which impressed me particularly about this material were the trueness of the outlines of each molding as well as the accuracy of its entire cross section.

It is difficult to give accurate comparative cost data, but in general concrete of this kind is cheaper than terra-cotta and considerably cheaper than stone.

* This plate was presented in the issue for May, 1914.



A POEM OF THE SKYSCRAPERS

By TWELLS BREX

Reprinted by permission from the London Daily Mail.

Not long ago my interest was aroused by reading in a morning paper the following:

"At last the New York skyscrapers have found their poet, though, appropriately, he chants his song of wonder and admiration in rhythmic prose. And verifying Scripture again, that a prophet is not without honor save in his own country, this singer of the majestic glories of steel and stone that cluster in lower New York and stray as far north as Forty-second street is an Englishman and his prose symphony appears in the London Daily Mail.

"Quotation, unless in full, is simply inadequate to give a reader any idea of the enthusiasm of this singer of monstrous piles and cloud-aspiring summits."

Then followed a tantalizing fragment of the poem, for such I think it indeed is, and worthy of every word of praise meted out.

Like the Chicago editor who got Her-

bert Spencer mixed up with a well-known firm of hardware merchants of that city, I am wondering who in the world is Twells Brex, the poet. Is that a real name of a real man? 'Twere a bootless question.

I had sufficient influence with the editor of this magazine to induce him to obtain from the publishers the entire piece which is here given. First let me quote you the final words of its New York discoverer—another poet, doubtless—who, like the lecturer at the circus, tells you what you are looking at, although you may know as well as he does all the time:

"And, although the writer of this pæan to skyscrapers saw the Woolworth Tower 'hidden in October storm-scurd,' one, after reading his Ossianic prose, cannot help regretting he did not see that same tower in the thick of the recent snow-storm."

J. L.

"All who have visited New York will agree that their second-hand prejudices against the American skyscraper were changed into wonder at the majesty of those monstrous piles that have superimposed four or five ordinary cities on the narrow island of Manhattan. They must have dreamt that London, too, will some day realize the economy of concentration, and that the returned exile, standing on Waterloo Bridge, will be astonished by vast and turreted walls towering over the squat roofs of present-day London, humbling our now highest buildings to the lowliness of shacks.

"Is the idea so vandalistic? Wherein are those mammoth towers of New York, on some of which has been lavished the engineering genius of a Forth Bridge, the cost and craftsmanship of a cathedral, more derogatory to a capital's comeliness and more hurtful to the sensitive eye than our jumble of the Strand, the dreary monotony of Victoria street, the pettiness of Oxford street or Cheapside, or the botch—despite all the dreams of an Imperial avenue—that is already being made of the opportunities of Kingsway? Are the deep gorges of Broadway and Fifth avenue—Rembrandtesque in their chiaroscuro of light and shade, mystic in their starry gleam at night—less seemly than the stocky facades that make London, much as he may love it, seem suddenly small and provincial to the Londoner returned from America?

"One assumes that the chief objection to the skyscraper is not so much against itself as against its incongruity with lowlier neighbors. Perhaps any skyscraper—unless it be such an inspiration as New York's Woolworth tower—is unlovely if it stands alone in an undergrowth of five-story buildings. But when an old building comes down on the priceless space of lower Manhattan, a mammoth building goes up, as a matter of course. The steel and stone giants are no longer nakedly alone. They cluster in kingly groups and line whole streets like halls of the Nibelungs. No one who has seen them—like a serrated coast itself—from his approaching Atlantic liner, wandered under their amazing walls, or traveled by a lift to their aerial summits will call this hyperbolic.

"No single unit of man's audacity and skill, the leviathan ship, the Nile dam, the Simplon tunnel, is more triumphantly self-complete and self-justified than that beautiful Woolworth tower, with its flying buttresses, its gilt-touched roof, its spire of crocketed gold, its white uplift by day, and its sky beacon by night. It captures your imagination when you see it from afar; it

draws you again and again while you remain; it is your abiding memory and symbol of New York.

"The Woolworth tower has been likened to a commercial cathedral. I see no irreverence in the comparison, nor any reason—apart from the sheer exigency of having to soar for space—why New York should not exalt, embellish and worship these arks of the energy, spirit and rivalry that have made her what she is. Just as Cologne raised of old her then incredible spire to the new impetus of spiritualism, New York has raised this monument to the new world impetus of human efficiency.

* * * *

"The conception of a New York skyscraper is often of a stark rectangle rearing up in unbroken lines, almost showing its geometrical steel ribs under a lean flesh of unrelieved stone. There are enough of such buildings in New York, but they were only the raw beginnings out of which have been evolved the Metropolitan tower, the astounding massivity of the Plaza Hotel, the giant horseshoe of the new civic buildings, the Bankers' Trust Building with its air-borne pilasters and pyramidal roof, the Candler Building, rocketing above Times Square at night in lines and cornices of fire, the cloud-aspiring Singer Building, and—last of all, until the next daring—this Woolworth tower, the highest inhabited building in the world, 780 feet in all, whose summit I have known literally hidden in October storm-scurd.

"And they are towns in themselves, these New York office buildings, housing two, five and ten thousand people under one roof. Their vast height is often based on a whole city block. They have within them the organization of a municipality; their own electric light, water and power plants, and a fire-fighting equipment that is almost a supererogation, because they are as nearly fireproof as the wit of man can devise. In the whole of the Woolworth Building there is no woodwork. The doors and partitions are of steel, terra-cotta and wire-glass. The frame of the building is a gigantic and homogeneous steel cage; the beautiful walls and ornaments are laid on as a skin. Beams and ceiling arches are of steel; floors are concrete; stairways are stone or metal. The fiercest blizzard of New York's harsh winter would not shake the skyscraper by a tremor, for it has been built to withstand the impossible pressure of a wind of 250 miles an hour.

"Whatever you may think of their external artistry, you cannot fail to be conquered by the internal complexity, efficiency and completeness of these commercial palaces of New York. It has been

truly vaunted that a tenant need not go from under his roof for almost any civilized want. He has, of course, the enviably competent telephone service of New York, and he can mail his letters in a chute on his floor. He has a post and telegraph office, a restaurant, a bank, an insurance office, a safe deposit, and even his own uniformed police. He can visit his physician, lawyer, broker, tailor, tobacconist, barber, and shoeblack. He can buy papers, books, stationery, theatre tickets, hosiery, hats, fruit, flowers and candies without passing his main entrance.

"Some of these vast buildings are open day and night, the cost of maintenance alone reaching £20,000 a year, and the one item of water supply £1,000. The Woolworth Building has 40 acres of floor space, 3,000 exterior windows, 80,000 electric lights and 28 lifts. Twenty-four thousand tons of steel went into the construction, 17,000,000 bricks, 87 miles of electric wiring, and 43 miles of piping.

* * * * *

"These are but figures, and no figures can so touch the imagination as an ascent to the top of New York's latest and great-

est skyscraper. It is infinitely more suggestive than the ascent of the slightly higher Eiffel Tower. The Parisian wonder is an engineering curiosity, a mighty skeleton reared for the sightseer, tenantless except by tourists and meteorologists. This tower of New York holds thousands of citizens who pass their workaday hours in all its 55 stories—people who sit at their desks and unheed by familiarity the most astonishing city view of the world. The stranger pays 50 cents and steps into the express elevator. Nothing here of the tedium and change of lifts of the Eiffel Tower—the flash to the summit takes exactly one minute. It is one of the cheapest and most exhilarating two shillings worths imaginable. The 55 floors fall past you like cards dropping from the hand of a juggler—streaks of alternate light and shade. And the view from that high-borne eyrie—all the amazing city—the encompassing rivers—the busiest harbor in the world—the Olympic dwarfed to a Channel steamer—the narrows beyond—and then the wide roll of the Atlantic—it hangs for ever afterward in the memory like a great picture in a gallery."—*London Daily Mail*.



CITIZENS SAVINGS BANK OF STAMFORD, STAMFORD, CONN.

Builders: The Whitney Co.
Photograph: Brown & Dawson.
Bronze: The Gorham Co.

L. E. Jallade, Architect.



CITIZENS SAVINGS BANK OF STAMFORD, STAMFORD, CONN.

Builders: The Whitney Co.

Bronze: The Gorham Co.

Photograph: Brown & Dawson.

Ornamental Plaster and Imitation Stone: Conroy Bros., Inc.

Interior Woodwork: The St. John Wood Working Co.

L. E. Jallade, Architect.



THE PUBLIC BANK IN THE ST. JAMES BUILDING, NEW YORK.

Bankers Building Bureau, Designers.

THE PUBLIC BANK

Extensive alterations recently made on the first floor of the building on the southwest corner of 26th Street and Broadway for the Broadway Branch of the Public Bank, New York, give this institution a home in keeping with the bank's past progress and its excellent outlook for future growth.

On entering the bank, the improvements begin with the entrance doors, which are of the revolving type in mahogany. The officers' room is enclosed within a low marble rail and the interior of this room is entirely wainscoted in panelled mahogany. A bronze gate gives entrance to the room from the lobby.

Marble work throughout the banking room is of Alabama white marble, very prettily marked. The screen is of marble, having glass panels framed in bronze and backed with bronze grilles. The wickets are also of bronze.

The counters and desks are of mahogany except the check desks, which are of marble and bronze. The decorations are in complete harmony with the architectural surroundings and the entire equipment makes a very handsome banking room.

This work was installed by the Bankers' Building Bureau, New York City.

FIRE PREVENTION

Comments by EDWARD ROCHIE HARDY

A Common Error. One of the outgrowths of the condition referred to in the last issue; to the effect that fire prevention was expected to cover the cost of all types of improvements or protective features; is that the idea became firmly fixed in the public mind that, as the companies made reductions for the better type of construction and for fire protection devices, the advantage was all for their benefit and the reduced rate of insurance ought to reflect the full cost in the improvement.

In many cases this can be done. This is quite true if we begin with the humble fire pail and run all the way up to the sprinkler equipment. The difference in the insurance rate will usually pay for the installation of the device. The time required, of course, will depend upon the cost of the equipment and the insurance carried. It is fairly safe to say that in the United States and Canada the insured considers that he should receive his money back for the equipment in reduced insurance rate even in the most extreme cases in five years. In many of the smaller devices he expects it the first year, and we are informed three years is about the limit outside of sprinkler equipments.

In the European countries and Great Britain, owing to the low rate of insurance, the returns for various devices are spread over a larger number of years. As a matter of fact, in many cases the return on a sprinkler equipment only represents 5 per cent. of the investment, and 20 years are required to work the matter out through the rate of insurance.

In a recent address before a fire prevention body an architect called attention to the fact, with some feeling perhaps on the subject, that there was too little difference in the rate of insurance between the best of fireproof buildings and the inferior types of construction so long as both were sprinklered. It seemed to him that this was an error and one which should be corrected by the underwriters. The fallacy underlying the thought is due to a misconception of the basis on which insurance is founded. It deals wholly with the theory of probabilities, and if a sprinkler device in a poor type of risk catches the fire in its initial stage it is just as good

a risk as though the risk was a better construction where the sprinkler equipment would do no more than catch the fire in its incipency.

The sprinkler levels most hazards, overcomes many difficulties, and even operates to overcome to a great extent differences in types of construction. Indeed, it has been stated by some underwriters that their experience with sprinklered risks in different types of construction does not show, in results, much difference.

This idea is reflected in other respects, thus in a recent building where there was a sharp contest between the dealers in wooden trim and metal trim the idea was advanced that the reduction for metal trim ought to be sufficient to make it profitable to install that type rather than the wooden. It was pointed out to the parties that the difference in the cost of the two types represented nearly \$300,000 for the property in question. At 4 per cent. this would represent \$12,000 per year, and as the total insurance on the building with the wooden trim would not exceed for one year the sum mentioned, it is evident that it would be impossible to make for this one item an allowance in the rate of insurance sufficient to cover the carrying cost. It ought to be clearly understood that the advantage in the better type of construction covers many other things in addition to the reduced cost of insurance. First: the better wearing qualities of the building. Second: the better rent. Third: the more permanent form of investment. Fourth: a less up-keep cost. These and many other things all enter into the question.

There may come a time when in order to encourage the building of the highest type of fireproof construction especially in the cities, that some inducement will be offered to the owner, but that inducement should take the form of a lower rate of tax on the better structure than on the inferior type.

Perhaps this idea is a bit chimerical, but why is it unreasonable to assume that the city might well shade the rate of taxation on an absolutely standard structure as against one of an inferior type or one of a totally different type of construction. In this there would be encouragement to erect such structures where others might be erected, but

please remember that the difference in the cost of the higher and the lower type cannot be reflected in the cost of insurance—the total amount involved is not sufficient—even if the insurance was carried free of cost.

A Sprinkler Example.

The severest fire during the month of May in the United States was that at Cleveland, Ohio. The value of a sprinkler plant is set forth in a good statement covering this fire. It read as follows:

"The fire was of an unusual nature, in that it completely cleaned out one large lumber company, damaged another lumber company, partially destroyed the Central Viaduct and N. Y. C. and St. L. R. R. trestle, destroyed about a dozen freight cars, including part of a circus train, and spread to a large sprinklered elevator. The elevator was iron-clad on frame, with small windows at the top. The heat passed through the windows and opened eight or ten sprinklers in the elevator. The sprinklers promptly and effectively responded, the electric fire pump properly responded and the supervisory connections transmitted flow alarm. Had the elevator burned it is difficult to tell what might have happened,

as it stood in the direct path of an extensive lumber and manufacturing district beyond."

Boston House fire, April the 14th, 1914, Boston, has resulted, as such fires usually do, in something more than a mere demand for a better building code. It is more than a demand since positive action appears very sure to result from the agitation started over the present defective code, and this agitation was due to this famous fire.

Can You Ring in a Fire Alarm?

This is a small matter and you probably think that you can do it, but two things may contribute to your efficiency in this matter the next time there is a fire in your vicinity. Locate at once the nearest fire alarm box, read carefully the directions on the box for turning in a fire. In the Melvin fire, noted above, there was a long delay in calling the apparatus because the person who started to ring the alarm merely opened the door and did not pull the hook inside. Question: Do you know how to ring in a fire alarm?



CITIZENS SAVINGS BANK OF STAMFORD. THE DIRECTORS' ROOM.
Interior Woodwork: The St. John Wood Working Co.
Lighting Fixtures: Mitchell-Vance Co.
Photograph: Brown & Dawson.

INVENTING A HOUSE

By FREDERICK SQUIRES

A GREAT many people have invented houses. The cave-dweller first invented and then incised his into a hill-side. The next man invented a method of bending treetops together, tying them there and rudely covering the outer sides of these unwilling supports for roof and walls. The best families lived in such dwellings for quite a time. The Romans went to great lengths in household improvements, further along that line in fact than their more artistic Grecian brothers. Without elaborating further, the point is that construction has been a series of inventions from earliest days, each invention being mothered by the growing necessities of its time. Each was at its own particular period the last and best word in construction, and in every case it took a mighty effort to overcome the inertia of the day and advance into the morrow. It has always been a difficult thing to invent a house, because the problem has been considered every day of the centuries by every living human soul. Each attempt to advance has likewise met with the constant and rugged criticism of every householder, and it has been hardly less dangerous to invade the sanctity of the home than it is to invade the system of house construction. It is then with considerable relish that I tell of the invention of a brand new kind of

building construction which has overcome inertia and opposition and is now an assured success.

Even in this new thing under the sun, advance has been only development. The starting point was the hollow-tile house and the final development has been the partnership between tile and concrete, such partnership having been necessitated by the fact that hollow tile itself is a material of one sided qualifications. It was useful in a wall but couldn't be made to form a floor or any beam-like form without taking in a partner, these partners have been various, steel being first tried, but concrete reinforced with steel, having proved to be the best qualified to hold down the job. But concrete itself is a one-sided material, not in a totally dependent way like tile, but through the fact that concrete is at one stage liquid and must be restrained to its final outlines until it has solidified into them forever. This requires the partnership of forms and in the "Invented House" concrete's form-partner was hollow tile. The hollows in the tile are the forms for the concrete.

I had the interesting experience of going to the building where these pictures were taken and seeing the "Invented House" in course of actual construction. It was a most illuminating visit. At



THE INVENTED HOUSE IN COURSE OF CONSTRUCTION.

the same time were being built walls, lintels, and two kinds of floors, either of which are adapted to form a flat roof.

The wall is composed of extremely large, hollow-tile blocks, so large in fact as to remind one of precast concrete units. Their relation to the usual size of a hollow tile is shown in Fig. 1. These blocks are laid, one over the other, breaking joints as is usual in hollow tile wall building, but with this distinction that adjoining openings do not coincide exactly in horizontal section. These



Fig. 1.—The New Tile and the Old.

walls are devised to provide vertical forms for concrete studs, not a new construction, of course. Mr. Vought, the inventor, had observed that tile walls, having an imperfect mortar bed at best, some times settled and cracked and that even when the wall had been used as a concrete form the bond between the tile and the stud formed in it had often broken, making the tile wall act independently of the concrete studs, and then failing because of its indifferent bed.

To overcome this and to carry the wall on the studs, providing anything happens to damage its own bearing power or to tend to produce settlement, Mr. Vought arranges that the vertical channel in one block does not correspond exactly to the channel above and below it so that when the form is completed a full story height and poured full of concrete, the shape of the resulting concrete stud is like a backbone, each alternate block resting on shoulders in the concrete. This makes the tile and concrete act as a unit, the main reliance, however, being placed on the continuous vertical concrete members just described. You will see by the model in Fig. 2 that the butting channelled ends of neighboring tile form the smaller section of the stud, the tile hav-

ing been removed to illustrate it clearly, and that the central core of the tile is larger than this end-formed section so



Fig. 2.—A Model of the Construction.

that the ends of the tile rest on the concrete shoulders of the centrally formed stud. The vertical reinforcement, insuring perfect bonding of subsequently poured batches of concrete, is also plainly shown. The tile lying on the wall end-on to the picture tells optically all I've spent so many words in trying to describe.

It is astonishing how many different things can be, and are, done with this same tile. By cutting away one of the edges of the channeled end the remaining one produces with the block the rebate for the window frame. The head and lintel are made as shown in Fig. 3 by the very ingenious method of chipping out the tile webs, a method which may be made to apply as well to many another building detail. It is obvious, of course, that after the reinforcement is put in place the wall is built up level or above the lintel on each side to close its ends before it is grouted, and not with free ends as shown in the picture.

We have proceeded chronologically enough by starting with the walls. Next comes the floors in which the problem is even better solved. Inverted T-sectioned tile are used so as to give an upright T-section to the concrete beams for



Fig. 3.—Pouring a Head Linet.

which they are the forms. Short spans are taken by the parallel beams and the longer ones by crossed beams. The parallel or one way beams with their tile forms and the way they rest on and bond into the grouted bearing walls are well shown in Fig. 4. The simplicity of the wood form work is illustrated. Such walls and floors, knit together with steel and concrete, have the strength of a masonry cube braced four square against all efforts at destruction, and fire resisting as the Pyramids. This T-section in concrete is one which wins the approval of every concrete engineer. The concrete beam must be a top-heavy affair and here that requirement is amply met. In the one way system the tile serves but a formative function, useful in measuring the exact depth of the beam and cutting out by its hollow make up, much concrete that would otherwise be dead and useless weight. But it is with the crossing beams that the T-tile comes into its own, for here the tile is no longer a form alone, it is as well a powerful addition to the strength of the floor. Fig. 5 shows the model of this construction. The T-tile is formed into a terraced pyramid by the addition of low loose members on each of its open ends. Fig. 6 shows this



Fig. 4.—One Way Beams.

assemblage concreted and you will see that each single T-block is entirely surrounded in all its compressive area with concrete so that when the whole slab is stressed in two directions these tops must be compressed as well as the concrete, and being equally as strong as con-

ed fill of loose cinders and a slag roofing to form a fireproof and temperature retarding system.

Having built walls, floor and roof, the working parts of this "Invented Building" are completed. As when the cave dweller came out of his hole and bent to-

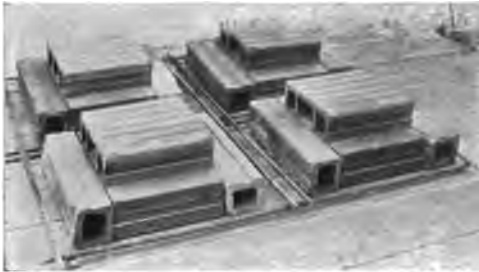


Fig. 5.—Two-Way Construction.



Fig. 6.—Model Showing Concrete in Place.

crete, they become a working part of the construction. At the supports, the tile are placed with channels parallel with the bearings and the closures are omitted so that the resulting beam is a wide rectangle in section diminishing to a T-beam when shear begins to lessen. These floors provide as well the structure for flat roofs and need only a grad-

gether and covered his tree tops, a new thing has taken its place among the habitations of man. A new thing truly but one which is made up of images of such well tried things as tile and concrete and steel collected in the kaleidoscope of a man's mind and there turned and turned till they have fallen into this combination never seen before.



HALLWAY OF THE STRAND THEATRE BUILDING.

Bulletin Board: U. S. Changeable Sign Co.

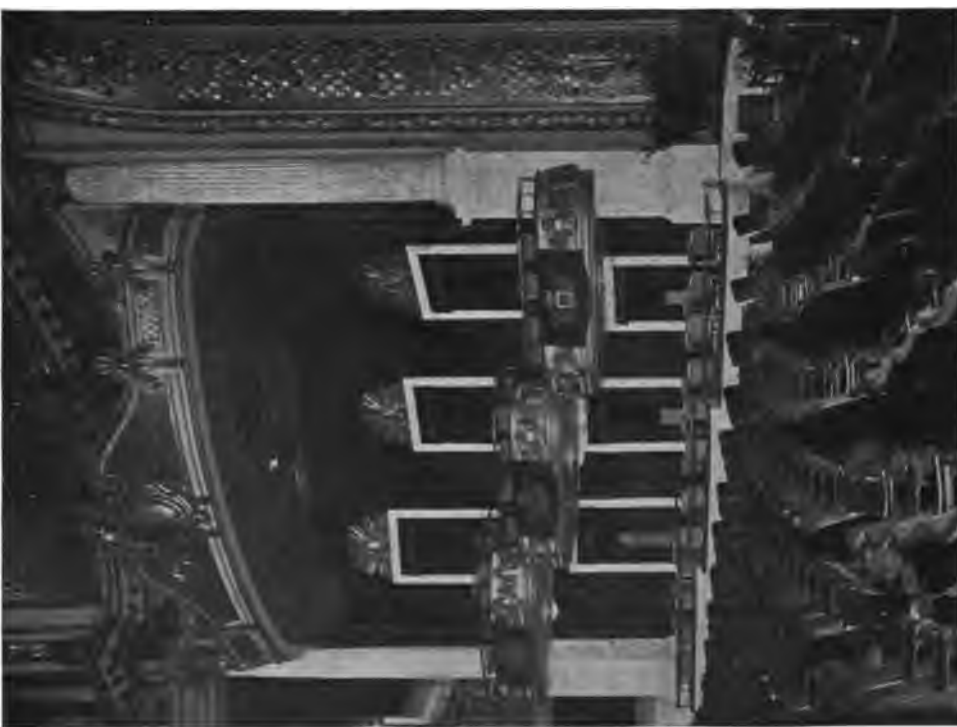
Thomas W. Lamb, Architect.



THE STRAND THEATRE, 47TH STREET AND BROADWAY, NEW YORK.

Terra Cotta: The South Amboy Terra Cotta Co.
 Hollow Metal Windows: S. H. Pomeroy Co., Inc.
 Electrical Contractors: Edwards Electrical Construction Co.
 Star Expansion Bolts.
 Reinforced Concrete: Arthur Greenfield, Inc.

Thomas W. Lamb, Architect.
 Structural Engineer: Paul Chapman.



Decorations, Murals and Draperies: O. H. Bauer.
Box Chairs: Thonet Bros.
Bommer Spring Hinges.
Von Duprin Panic Bolts.

Bulletin Frames: Penn Brass & Bronze Works.



THE STRAND THEATRE.

Thomas W. Lamb, Architect.

Temperature Regulators: Standard Regulator Co.



THE STRAND THEATRE.

Stage Equipment: William Camph.
 Stage Hardware supplied by A. W. Gerstner Co.
 Stage Scenery: Ackerman Bros.
 Railings, Grills, etc.: Penn Brass & Bronze Works.
 Stage Hardware and Manual Counterweight Rigging made by J. R. Clancy.

Thomas W. Lamb, Architect.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

Volume XLVI

JULY, 1914

Number 7

It may seem like a long call from Mr. Henry Ford, maker of Everyman's automobile and recipient of all—or almost all—the spare cash of the middle class of America, to the stagnating condition of business in this country, whether it be the publishing business, the business of selling canned provisions or the clothing business or the highly "systematized" and unionized building business.

There is an ancient nursery story about an old woman who was driving her pig to market. She came to a bonny bunch of blackberries and for some reason or other she wanted the pig to go over a bridge which was near at hand so that she could be undisturbed in eating the bonny bunch of blackberries. The pig refused to go because the blackberries never did him any harm. But the old woman was not to be stumped by a pig, and after a long chain of adventures she came to a cat that offered to interfere if she were given a saucer of fresh milk. The milk was supplied and the cat started something. The result was that the pig went over the bridge and the old woman ate her bonny bunch of blackberries.

If the people of free and intelligent America have decided that they must all have automobiles—have really made up their minds that they will go without food and clothes (and perhaps whiskey, beer and tobacco) in order to possess them—it means a Revolution; it means that those who live by selling canned provisions or by making clothes will have to stir themselves. Maybe a lot of them will have to quit the business, as Mr. Page suggested some of the publishers ought to do.

And it means that the builders will have to do something unusual. Perhaps a few of them will find new fields for their activities.

As for the stock exchange—if this automobile business keeps up the Wall Street folks will have to go back to the farm, too.

The whole situation is entirely natural, after all. We have a parallel in New York city where the traffic used to go up Broadway from the Battery to Forty-second street. Then came the subway, which took the crowd up along a new path. And see what has happened to Broadway and the ground immediately adjacent thereto.

Deserted, desolate, its value shrunken, it lies a present day proof of Nature's fickleness.

People living out west along the Missouri River used to hear stories of how farmers whose property lay beside the river bank would wake up in the morning and find sometimes that the river had disappeared—it had changed its course and was flowing past somebody else's ground ten miles away perhaps; or it might be that the river had taken a notion to wash the farm away and there was nothing left; sometimes the farm house and all its occupants went with it and death was added to the disaster.

But the land was all there even though its former owner could not identify it and even though it ruined him; and the water was all there, and most of the people.

So it is with business. The country is still here and so is all the money, and most of the people, too. But the man who owns a corner on some parts of Broadway might like to trade it for a corner on Fourth Avenue, and the man who has a broker's shop on Wall Street would like to trade it for a flourishing automobile factory.

It is the struggle of human beings to keep from being swept away by the changing course of the current or being left high and dry far from the channel of profitable work, that is making things so "psychological" in this year of grace.

Too many mouths to feed and not enough to supply them. Too many people in the cities living off each other—too few out on the soil raising the wherewithal for the city folks' activities and where probably they would be at least independent. They say that that's where they have the most automobiles, too.

And what mad, unreasoning creatures human beings can become when they are aroused by the fear for their bread and butter—a panic fear, and so useless—like a crowd of blind fiends who struggle with one another to the death in some theatre panic, while those who sit cool and wait are safe.

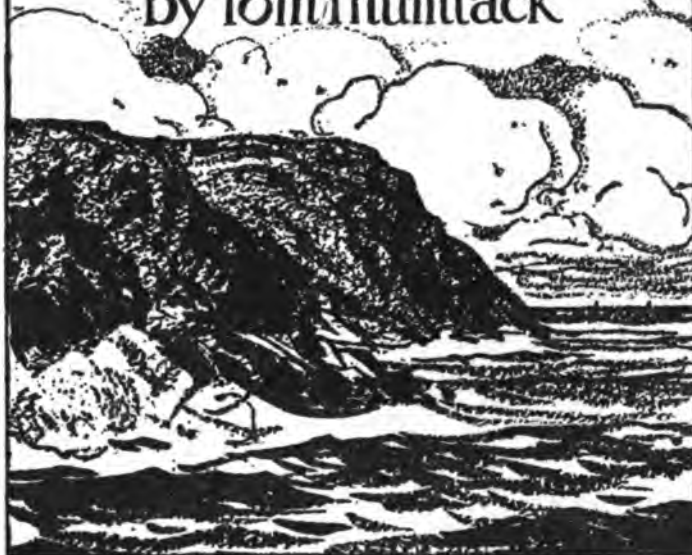
This fear for our bread and butter makes savages of human beings—wild beasts that destroy each other. It makes men tricky, it makes them dishonorable. I have known friend to turn against friend, brother against brother, son against father—all on account of this awful bread and butter question.

And getting down—or back—to the building business, where some of us live, I have seen more wanton folly committed by foolish builders fighting for a job than any sane man could believe possible.

Theodore Starrett.

ARCHITECTONICS

THE WRECKERS by Tom Thumtack



The most fascinating thing about building is demolition. Just hear old Thomas Thumtack pull off a paradox. I've had to tear down lots of buildings in my day and I've unearthed romance, history, crime, treasure, ghosts, skeletons, tin-cans and dead cats. Captain Kid hid a treasure, or, at least, gave that impression and at last count, ninety-seven thousand people had dug for it and nobody had found a bit of treasure or done a bit of good by hunting. Hence the derivation of the words "to kid." I always do good when I'm tearing down old houses, the treasure being only a by-product. Except in the stories I'm now going to tell you, nothing of great value has come out of their ruin. But as the seed must rot to breed the root, so the old masonry must crumble to create the new.

A building may be marked for the wrecker because it has outlived its strength, its usefulness, its surroundings, its beauty or its day. Like the human race, the life of its habitations is from earth to earth, from dust to dust. They are marked by the finger and foot-

print of Time. Is there anything more fertile in suggestion than a footworn doorstep or a ceiling stained by a thousand hearthfires?

I have just come back from the destruction of the Milburn house where Washington left a story, where Lafayette drank a toast to liberty and kissed a lovely lady's hand. Now it has fallen in a dusty heap to make way for the lofty, cellular abode of a thousand Israelites. I'm troubled not by the seeming desecration for my mind is filled to overflowing with the wonder of man's habitations, the history of his life which is written on them all too faintly for human eyes to read. His baby foot has worn its track, has left its tiny trace upon the floor; the stride of his prime has made a firmer gash and then comes the wavering mark of the shambling slipper of old age. That door-step has been written with the history of many lives but



we cannot now turn back its pages. Its walls are the dictograph of baby prattle, full-toned voice, laughter, sorrow, quavering pipe and death's last rattle. Yet these walls are but receivers and it has not been given them to transmit again to us the history they have heard. Now and then, man makes a secret panel, digs a tunnel, hides a treasure (a pot of gold, a love-note or a poem) and in after years the house comes down and I unearth the sordidness, his romance, or his tragedy. The doorstep has a story, but it has every story. The splintered stone may be the work of an invader's bullet or a child's chisel. The foot of the just or the unjust may have worn its hollows. I do not know, my fancy has full swing. But if I find a pot of gold, a love-note or a poem then I can limit my imaginings by something tangible. I can take half fact and add to it but half of my own construction. Once in a blue moon, I find a hidden diary, a lost will or a last confession and get the whole truth and nothing but the truth. These are the most fantastic of them all. I'll take down my old demolition contract-book and with it for reminder tell you strange tales I have exhumed in my demolished buildings.

Here is the Schirer Building. I laugh to-day when I remember old man Schirer's boast that the builders of the present day use lies for bricks and knavery for mortar, but in the days when he erected the old buildings, those were the days of honesty and building-virtue. We tore the buildings down or I should rather say we made a place into which to let them tumble. The mortar was a musty powder. "All lime mortars go that way," defended Mr. Schirer. The roof timbers were spliced, patched and rotten. "The tenants must have had a fire and replaced them with defective stuff without my knowledge." In the walls themselves we found big hollows and great pieces of rotten timber, refuse sneaked in place to save a cubic yard of brick-work. The foundations were not in plain view, rested right on the surface. No further word from Mr. Schirer. When I went to find him he had gone for the day. He finally had to come to protect his



interests when a great piece of wood-filled wall fell with a crash, entombing a laborer in the cellar. By that time he had reconstructed half his views on building by the elimination of all honesty. Now, all constructions from the walls of the Garden of Eden to the Gates of the Grave, were, are, and will be built with lies for bricks and knavery for mortar. I had reconstructed half of my ideas. We are improving.

The Moon Club on the Bowery. We tore down the old building and found in the basement a passage into the neighboring wine cellar of their old president and in it a narrow track such as you see in coal mines, and a curious counter-shaped bar on wheels to run on it from one building to the other. That's the reason the Moons never paid a license! I now understand many a moonshine joke and the queer car-wheel on their emblem. Below the cellar was a miniature amphitheatre reached by a trap-door from their secret chapter-room. In this was all the paraphernalia of the squared circle, and in an old

safe a wonderful record of high-class Fistiana. From the fighting ring was a passage to the cellar of a private house on another street and the record held that no fighter had ever entered or left the club building, but claimed the proud boast that the Moons had settled three world's championships.

The Rector's Brother. (You shouldn't read this one if you are squeamish about rubbing the nap off the cloth.) When we tore down and re-built All Souls, the rector's old house beside it was to remain untouched. Next beyond him lived his twin brother and the new building was to be L-shaped adjoining the rector's house and extending behind his building and his brother's.

These two men looked wonderfully alike but were by reputation sundered as the poles. Both were big, full-blooded, red-faced, curly-headed men, with splendid voices, magnetic personalities and magnificent vitality. But one was a rector and one an actor—a saint and a sinner. Both were bachelors, one on account of his faith and the other his faithlessness. The ties of blood were strong between them so that each held the other in tremendous affection, which the wildness of the actor must have strained near the breaking point on many a mad occasion. I have seen them both in their specialties and each was superb. Each had an enormous following and each was worshipped by the ladies. The rector seemed to repel affection while the actor encouraged it, but strange to record the actor left fewer real worshippers than did the rector. The actor drank to wild excess; the rector never; celibate and sensualist, abstainer and rioter, the spirit and the flesh. Yet I have been startled by the passionate likeness of their forms and faces. Was it only the reflection of that same wild blood to which each owed existence?

When Drew wrecked the buildings beside the rector's house, and behind both his and the actor's, straightway he got himself in trouble. Both houses settled. I rushed down and got permission from the servants (the owners being absent) to examine both the buildings. I'm something of a connoisseur in decoration. I was never more impressed than with the way each house bespoke the character or better the profession, or best of all the profession of character of its occupant. The rector first; cleanliness, it was a hospital; cheerlessness, it flagellated the spirit; austerity, it was painted in four-story letters. The study was wainscoted to the ceiling in a curious pattern of flat oak planks and was furnished with but a desk and a single chair and his bed room with three pieces was even more monastic. The servant said that here the rector locked himself day and night for study and allowed no one to disturb him. She seemed quite frightened when I insisted on going through the rooms as though she thought that I profaned their sanctity. Somehow I could not picture the rector in quite so cold a framing.

Then the actor's. His house was the house of mirth. He had invented new orders of architecture, new periods of decoration. They were those of Bacchus, Venus and Harmony, wine triumphant, love

free and all softened with the melody of color. A lovely figure caught the eye just as a bacchanalian decoration inflamed the mind or a riot of color had reduced resistance. You could conjure up those wild Bacchante whom the actor made a boast of entertaining and see himself among them there the master host, a whole host in himself, the dominant center of a gorgeous picture in a sensuous frame. But his den! What the rest of the house whispered the den shouted. It was the call of the siren, the lure of the houri, the seduction of the serpent, the web of the spider, the den of the panther. The climax was struck by comparison when I saw from its location that this den must be separated from the monastic study of the rector by but the thickness of the party wall.

From its ceiling and down about three feet through the teak woodwork, a great crack was opening. I ran out doors and into the rector's study to trace the course of the settlement. The wainscoat hid the wall but was splintering at the top. Suddenly came the shriek of rending wood and in the wainscoat a hidden door sprung open. The two houses connected!



DEPARTMENT STORE FOR THE KAUFMANN & BAER COMPANY, PITTSBURGH, PA.

STARRETT & VAN VLECK, Architects

This new department store building is of twelve-story height, 214x240 feet, with basement and sub-basement. It is located at Sixth Avenue and Smithfield Street, Pittsburgh, Pa. The equipment of the interior to meet the needs of the Kaufmann and Baer Company was planned with care.

The basement is equipped with fixtures devoted exclusively to the sale of bargains and at different times all departments from the upper floors are represented here. Some departments, such as shoes, ladies' suits, underwear, domestics and corsets are given permanent space. Here also is located the main cash station of the pneumatic tube system. The absence of show cases is notable and all goods are openly displayed on tables with reserve stocks on the shelvings along the walls.

The disposition of the fixtures on the first story was determined by the location of the two main entrances, one on Smithfield Street and one on Sixth Avenue. The main aisles lead from the entrances to the two banks of elevators and these aisles are equipped with complete bargain sections each provided with its own accommodations for wrapping. This story is devoted exclusively to the sale of small articles, including men's furnishings and hats, gloves, neckwear, laces, embroideries, hosiery, ribbons, jewelry, silverware, umbrellas, leather goods, notions, drugs, patterns, etc., and also contains a soda fountain and candy department. Wherever possible for purposes of selling as well as display, glass showcases and display cases are used and are brilliantly lighted. All modern conveniences are installed in the fixtures for the quick handling of stock by the salespeople and the fixtures are arranged in units so as to make their systematic disposal possible. All goods are protected at night by

means of a patented arrangement by which curtains slide out of pockets in the ends of the fixtures in which they are concealed during the day. All the show-cases and counters rest on metal legs, thus preventing an accumulation of dust under them and making easy the removal of papers or rubbish. All wrapping stations on this floor are equipped with chutes leading to a belt conveyor system which delivers the packages directly to the shipping room, thus obviating the former method of having trucks pushed around the floor for collection. All fixtures on the first floor and above, to and including the sixth floor, are made of mahogany, same having been selected with especial care as to the figure and grain of the wood.

The mezzanine is different entirely from the majority of such floors, inasmuch as it is 30 feet wide and extends all around the building. The height is such that it gives the impression of being an entirely separate floor. Here will be found a complete shoe department, books, stationery, sheet music, optical department and art needle work department, also the offices of superintendent and the complaint and adjustment departments. The view from any point of mezzanine to the first floor is of interest to all visitors, as it shows the activity of a great store of this character which can only be realized from such a vantage point.

The second story is devoted to an extensive department of dress goods, silks, velvets, domestics, muslin underwear, infants' wear, corsets, linens and millinery, with a millinery work room in connection. Here also will be found an evening room used for showing silks, etc., under artificial light. The fixtures on this floor are surmounted with all-glass display cases. Opposite the elevator en-



THE KAUFMANN & BAER COMPANY'S NEW PITTSBURGH DEPARTMENT STORE.
Builders: Thompson-Starrett Co. Starrett & Van Vleck Architects.
Terra Cotta; New York Architectural Terra Cotta Co.
Evans' "Crescent" Expansion Bolts used.
Fireproof Windows: S. H. Pomeroy Co., Inc.
Otis Elevators.
Bommer Spring Hinges.
Rolling Steel Doors: Jas. G. Wilson Mfg. Co.



DRUG SUNDRIES, FIRST STORY.

Otis Escalator.

Fixtures: Staudte & Rueckoldt Mfg. Co.

trance are full height display cases, which make an attractive show. An Otis escalator leads up to this floor directly from the first floor, having a landing on the mezzanine. Escalators continue up to the fourth floor.

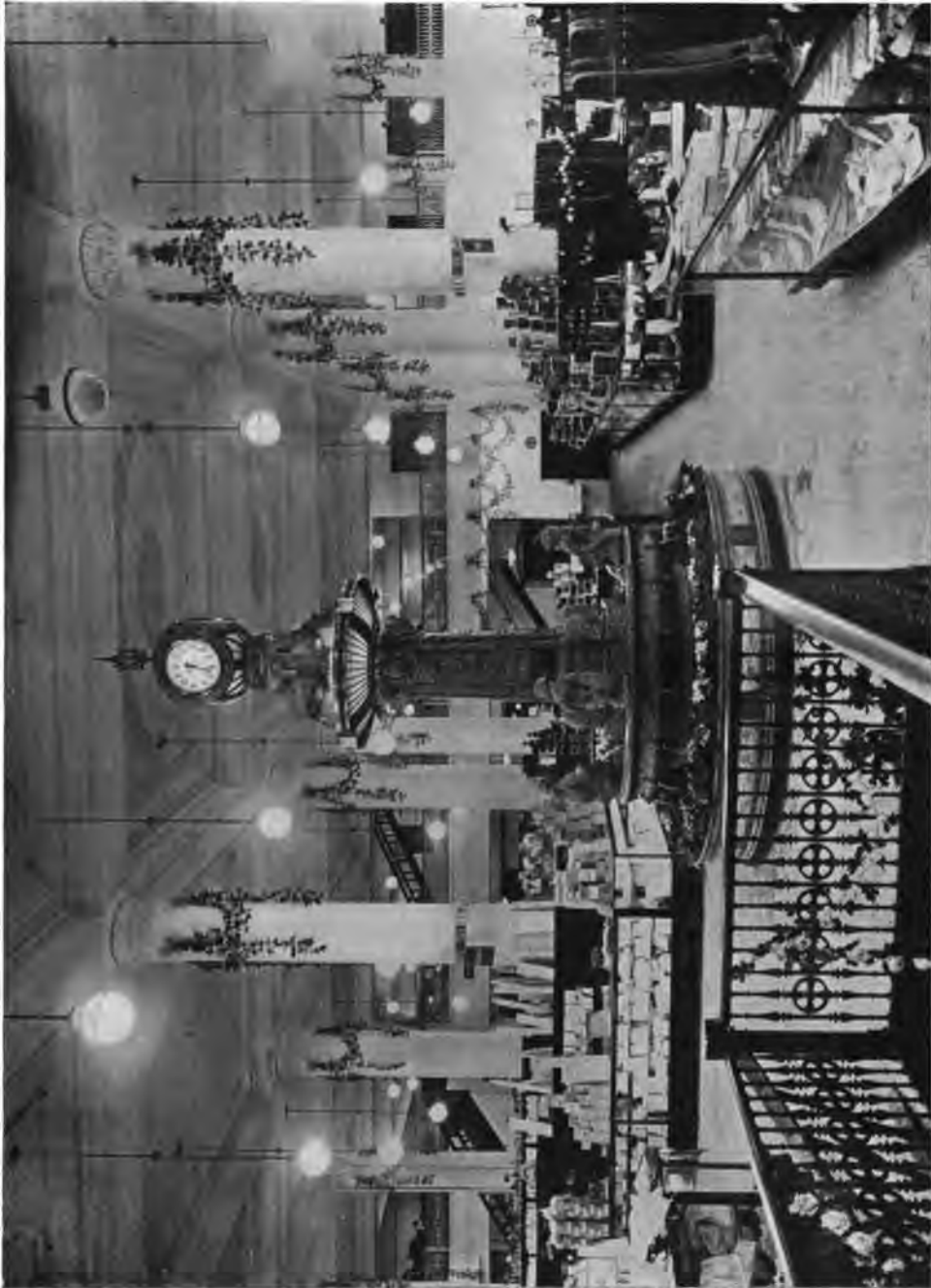
The third story is essentially for woman's needs. Here can be found a most complete department of ladies', misses' and children's coats, suits, dresses and departments for furs and waists. There is also a very attractive ladies' waiting room and parlor with ample toilet facilities and a department for hair goods and manicuring. Spacious fitting rooms are found in abundance and in convenient locations. All garments are kept either in stock rooms or cabinets and are thus always in prime condition when shown to customers. All columns and blank wall spaces are fitted with mirrors of large size.

The fourth story is for men's and boys' clothing, boys' hats and furnishings, sporting goods, kodaks, trunks and bags and a complete assortment of automobile tires and accessories. The clothing department is entirely open along the windows of the two main streets, giving am-

ple daylight for the selection of clothing, which is kept for the most part in glass cabinets and to some extent on large tables.

In the fifth story will be found a most complete assortment of house furnishing goods. The kitchen ware section is in the main part fitted with tables spaced so as to allow customers to circulate freely among them. Included in this section will be found electrical goods of all kinds and a complete department of household hardware. The china and glass section is fitted with a profusion of plate glass shelves and mirrors, brilliantly lighted from above where necessary. In certain sections of this department the fixtures and tables are covered with green cloth to prevent scratching of the woodwork. On this floor will also be found a toy department with a spacious playroom for children.

In the sixth story are the carpets, rugs and linoleums, curtains, draperies, shades, pictures and wall paper; the entire seventh story is devoted to furniture with display walls where different room effects may be shown; and the general offices, offices of the firm, auditorium, public din-



FOUNTAIN IN ROCKWOOD FAIENCE IN THE CENTER OF THE STORE.

Designer of Interior Equipment: Tausig & Flesch.
 Bronze Clock: John Polachek Bronze & Iron Co.
 Fixtures: Staudte & Rueckoldt Mfg. Co.

Starrett & Van Vleck, Architects.
 Clement J. Barnhorn, Sculptor.

ing room and kitchen, and employees' lunch room are in the eighth story. In the ninth story are stock rooms, fur cold storage, vault and work rooms; and the tenth, eleventh, twelfth and thirteenth stories are devoted to receiving and marking rooms, stock rooms, buyers' offices and storage, with also a completely equipped carpenter and paint shop. The roof is used as recreation space for employees and has a rest and reading room for women and smoking room for men.

The firm of Starrett and Van Vleck were the architects of the store building. The Thompson Starrett Company were the builders and the firm of Taussig and Flesch the designers of the interior equipment. The Chicago Store and Office Fixture Company supplied the store fixtures for the basement floor. Staudte & Rueckholdt Mfg. Co. made the fixtures of the first story and counters above.

The large soda fountain on the first floor has a counter over 62 feet long, of white Italian marble. The base and plinths are of selected Verd Antique green marble, 10 inches in width with

1½-inch bevel. The top moulding, caps and pilasters are of white Italian marble, as is the top dispensing slab. The work-board is divided into three sections, or units as they are called. They are built entirely of marble, metal and slate and are insulated with special compressed cork and fastened with cast brass stays and angles. Each unit also is equipped with a double stream, silver plated, Simplex draft tube and one single stream for ice water. Each unit has ten syrup containers and four crushed fruit jars, all interchangeable. All containers are vitrified porcelain, cast in one piece. All are set on a slant which provides wider work-board space. The soda and mineral coolers are the latest construction of seamless copper tubing, heavily tinned on the outside and lined on the inside with seamless block tin. There is a triple ice cream cabinet in each unit, giving capacity for 45 gallons of ice cream. In the seven sinks the corners are round so that no dirt can collect. Hot and cold water inlets are in the bottoms. The superstructure is of selected Honduras mahogany,



EMBROIDERIES AND LACE ROBES, FIRST STORY.

Chairs: Thonet Bros.



THE FIRST STORY FROM THE MEZZANINE.



THE SIXTY-FOOT SODA FOUNTAIN, FIRST STORY.

Soda Fountain made by the American CSoda Fountain Co.
 Basement Store Fixtures: Chicago Store & Office Fixture Co.
 Panel Boards: Metropolitan Electric Mfg. Co.
 Freight Elevator Doors: The Peelle Co.



MILLINERY PARLOR, SECOND STORY.



LADIES' SUIT DEPARTMENT, THIRD STORY.

Designers of Interior Equipment: Taussig & Flesch.
Stanley Full Surface Metal Door Butts.
Chairs: Thonet Bros.
Metropolitan Detachable Push Button Switches.



"COLLEGE ROOM" FOR MEN'S CLOTHING, FOURTH STORY.



CHINA DEPARTMENT, FIFTH STORY.

Counters: Staudte & Rueckoldt Mfg. Co.
Freight Elevator Doors: The Peelle Co.

Starrett & Van Vleck, Architects.

with a refrigerator base. The whole fountain is cooled with brine refrigeration. This soda fountain was installed by the American Soda Fountain Company.

The kitchen equipment contains every possible time-saving device which will add to the efficiency of service. The arrangement is such that there is not a wasted step taken. There is no confusion or crossing of waitresses, and every article seems to be in just the right place. The architect allowed sufficient space for the kitchen to be well planned, and the absence of crowding is conspicuous. The special ventilating system keeps the kitchen moderately cool even on the warmest days. Much of the efficiency of this kitchen is due to the equipment house of Bernard Gloekler Company,

who laid it out according to the most approved system, and manufactured and installed the equipment. In the equipment of the restaurant, the tables were supplied by the Reischmann Company, and the chairs by Thonet Brothers.

The fountain in the center of the main floor is built of faience executed by the Rookwood Pottery Company. The bronze clock frame at the top was cast by the John Polachek Bronze and Iron Co.

The exterior is largely of architectural terra cotta supplied by the New York Architectural Terra Cotta Company. S. H. Pomeroy Company, Inc., furnished fireproof windows, and the James G. Wilson Manufacturing Company supplied rolling steel doors. The Peelle Co. supplied the counterbalanced freight elevator doors.





RESTAURANT AND KITCHEN IN THE EIGHTH STORY.

Kitchen Equipment: Bernard Glockler Co.

Chairs: Thonet Bros.

Tables: The Reischmann Co.

Starrett & Van Vleck, Architects.



NEW HAVEN COUNTY COURT HOUSE. ROTUNDA.

Bronze Entrance Doors: John Polachek Bronze & Iron Co.

Allen & Williams, Architects.

Evans' "Crescent" Expansion Bolts used.

Otis Elevators.

Grant Overhead Pulleys.

Lighting Fixtures and Standards: Sterling Bronze Co.

Cutler Mail Chute.



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DECORATIONS OF THE NEW HAVEN COUNTY COURT HOUSE

By M. R. C.

The interior of the New Haven County Court House is one of the best illustrations of the harmony existing between all contributing elements due to the entire decorations having been placed under the direction of one mind. Mr. Gilbert White, who conceived and superintended the decorations, and who painted the beautiful murals, is an American artist of distinction.

The interior of the New Haven County Court House stands as a complete unit, each room forming a consistent part of a dominant idea, so that in passing from one room to another, one is struck with the harmony of the whole rather than the brilliancy of any single room. The decorative features have been carried out in a pure Greek style. The murals consist of two canvases approximately, fifteen by twenty-five feet in size, together with two lunettes of smaller dimensions. The larger panels are placed on either side of the grand stairway, and represent the "Epochs of Life."

On the right is the panel representing Childhood. In the center, upon a raised dais, sits a beautiful female figure symbolizing Life. In her uplifted hand she holds a distaff from which she gives freely of the golden thread of life which supports the uncertain steps of the toddling

child, taking his first step upon the pathway of life. In the background is the spring of life, surrounded by leafy trees waving in the summer breeze, from which he has come. Lighted with the misty sun of morning is the field behind, lavishly strewn with flowers. Tight within his baby fingers is his only support—the thread of life. Before him he sees only the single spot of sunlight on the grass which interests and leads him on. As he makes progress the path becomes more bare and waste, until finally at the end only the golden robe of Life falls across it, concealing from his limited vision the grave crowned with achievement when honorably reached and around which are strewn the bones of those fallen by the wayside, unburied and forgotten. Were it possible for his eyes to see beyond the little spot of sunlight, which tempts him on, it would be the beautiful figure of Life, and not the shadow, which is Death, hovering by the side of the grave, awaiting his turn. Accompanying the child is the floating phantom figure of Personal Destiny shrouded in moonlight veils which she half raises as she ponders on the future. By her side is Maternal Love, stretching forth the anxious, tender hands of motherhood with the realization of her inability to carry him through



Copyright, 1914, by Gilbert White.

life, although she can guide and direct the journey with love and care. On the left is the sunlit cloudless sky of Youth and on the right the ominous cloud of Trouble is already gathering. In contrast to the luxurious foliage over the Spring of Life, a dead branch raises its lifeless silhouette against the sky over the grave.

The companion picture represents Manhood. Here the child is grown to

man's estate. He has arrived at the port of life and on the rugged shore he plays a game with Death. His companions bend eagerly about him, interested in his success or his failure. By his side is a youth whose turn is yet to come, and on whose face the terror of realization is already depicted. Near him is the old mariner, who has met Death before and has learned the philosophy of life, assuring him against the anxiety of one less



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learned. In the background Hope and Ambition anxiously watch the progress of the unequal game. The man himself starts forward as he realizes for the first time that the phantom figure with whom he plays is Death. His face bears the expression of terror, of appeal and of perplexity. The sea of Life stretches in the background, and at anchor is the ship with sails idly flapping.

In the law library is a lunette whose name is "The Laws." In the center are Ancient and Modern Law—Ancient Law represented by Moses, who leans wearily over the Book of Life. By his side stands Modern Law, a graceful woman pointing a little disdainfully at something written in the ancient volume. Mr. White here has broken away from the orthodox symbol, and has recognized probably for the first time the power of the Unwritten Law, and also implies a delicate compliment to the progress made by women in the law of the land. The figure of the woman symbolizing Modern Law is an indication of the trend of modern times. At one side the mother is teaching her child the first precepts and here is symbolized the Written Law, being the law which the child learns at its mother's knee. On the opposite side is the Unwritten Law, representing a criminal whose shackles have been rent asunder by the Angel of Truth. This

symbolizes the Law of the Conscience, which liberates when the deed be justified.

The lunette over the Supreme Court which has not yet been placed, is still exhibited in the Paris salon where it has been accorded the place of honor. It pictures graphically the Administration of the Law. In the center sits the noble figure of Law with a sword resting idly across her knees, while Justice pleads the cause of a shackled prisoner and lifts the crimson cloak of shame, disclosing underneath a human being. She symbolizes the Justice of Law. Flanking this figure of Justice is the armed figure of Force, and at the side of Law, Religious Consolation, represented in the form of a monk, looks sadly on, while Charity, symbolized by a kneeling woman, protects and soothes the Weak, further symbolized by a frightened child.

It may be interesting to observe in connection with Mr. White's work, that the brilliant figure of Life in his principal panel was posed by his wife, as was also the mother's head in the same picture. As the Law itself strikes the shackles from superstition, so does Mr. White by a few bold strokes of his brush, symbolize in his latest work the wonderful progress which has been made in the arts and sciences, as well as in human progress.



Copyright, 1914, by Gilbert White.



NEW HAVEN COUNTY COURT HOUSE. SUPERIOR COURT AND SUPREME COURT ROOMS.
 Interior Contractor: George W. Cobb, Jr.
 Chairs made by Marble & Shattuck Chair Co.
 Lighting Fixtures and Standards: Sterling Bronze Co.

Allen & Williams, Architects.



NEW HAVEN COUNTY COURT HOUSE. ROTUNDA GALLERY AND COURT OF COMMON PLEAS.
 Lighting Fixtures: Sterling Bronze Co.
 Clock Rings: Penn Brass & Bronze Works.
 Star Expansion Bolts.
 Clock System: The Magneta Co., Inc.
 Chairs made by Marble & Shattuck Chair Co.



EDUCATIONAL BUILDING, CORNER OF FIFTH AVENUE AND 13TH STREET, NEW YORK.
Builders: Edward Corning Co. Charles A. Rich, Architect.

THE EDUCATIONAL BUILDING

CHARLES A. RICH, Architect

The name given this building is intended to convey the idea of its purposes. As a building it is occupied by firms who supply the needs of educational institutions. Here it is now possible to find everything for the school, beginning with the school building itself. It



VESTIBULE ON FIFTH AVENUE.
Mural Paintings by Matilda A. Brownell.
Cutler Mail Chute.

is possible to engage a school architect in the building, and formulate the first ideas of the planning. From this first step, proceeding to the building of the school house, many contractors who specially cater to this work have offices in the building, and part of the permanent educational exhibit in the building is

devoted to building materials. Further, all supplies for the school are on exhibition and may be ordered on the premises, and finally, even teachers may be engaged. With absolute economy of time, the educational public can procure school books, desks and seats, laboratory apparatus and manual training equipment. Many of the offices are occupied by text book publishers, teachers' agencies and dealers in every kind of school supply as well as illustrators of school books and agents for printers and paper mills.

On the 7th floor there is a permanent educational exhibit, really a sort of clearing house for educational materials. The operating company is a complete school and college outfitter. The exhibit embraces everything that will go into an ordinary school room in the way of equipment, and in addition, construction of the school room itself, the building of which it is a part, and everything that pertains to it—heating, lighting, ventilation, what not.

The educational building itself is an extensive 12-story structure. It has a narrow frontage on Fifth Avenue, but extends along 13th Street for nearly 250



RECEPTION ROOM AND SALES OFFICE OF GINN & COMPANY.
Eye Comfort Light System.



PERMANENT EDUCATIONAL EXHIBIT COMPANY ON THE SEVENTH FLOOR.



PRIVATE OFFICE OF GINN & COMPANY.

Builders: Edward Corning Co.
Furniture and Partitions: Samuel Lakow.
Chairs made by B. L. Marble Chair Co.
Eye Comfort Light System.

Evans' "Crescent" Expansion Bolts Used.
Grant Overhead Pulleys.

Diamond Door Hangers.
Bommer Spring Hinges.



OFFICES OF THE PENNSYLVANIA WIRE GLASS CO.

Charles A. Rich, Architect.

feet with a depth of 100 feet for more than half its length. It is of the best type of modern steel frame construction, built of non-combustible materials and equipped with an automatic sprinkler system and approved fire stops separating the building into several divisions.

The irregular ground plan makes more than half the outside walls exposed to the danger of fire from the continuous low-lying buildings. Shutters were of course not to be thought of on a building of this character, so recourse was had to what is becoming the standard type of window protection: wire glass in metal framing. The expression standard type is used advisedly, for within the past few years, architects as well as fire underwriters have been turning to the wire glass window as giving the highest degree of protection as well as being the least objectionable in point of appearance.

All windows in the Educational Building, except those facing the streets, are of this description. Solid wire glass, made by the Pennsylvania Wire Glass Co., being chosen on account of its

greatly superior strength as well as its appearance and light diffusive qualities. Polished glass is used in the lower sashes and rough in the upper, while the interior doors and partitions are provided with "Cobweb," the latest type of figured glass, now coming into such general use on account of the brilliant illumination which it secures.

In our illustrations we have shown several interiors which explain the character of its occupancy. The first three floors are occupied by Ginn and Company, publishers of technical books. The 7th floor is occupied by the Permanent Educational Exhibition Company and there are a number of firms with large space.

Charles A. Rich was the architect, while the builders were the Edward Corning Company. The interesting indirect lighting system installed is known as the eye-comfort system, made by the National X-Ray Reflector Company. In the reception and sales room of Ginn and Company on the second floor, the furniture and partitions were supplied by Samuel Lakow, and the chairs were made by the B. L. Marble Chair Company.



SHIPPING ROOM OF GINN & COMPANY.

Star Expansion Bolts.
Eye Comfort Light System.

A NEW BROADWAY THEATRE

THE new Eighty-First Street Theatre, at the corner of Broadway and 81st Street, New York City, which has just been opened, is decidedly a step forward in the erection and equipment of a modern vaudeville and photoplay house. The amount of study which has been given and the taste displayed throughout this entire structure is evident, even to the exterior of the building which is of matt glaze white terra cotta.

The side walls of the theatre lobby, up to the cornice height, are finished in caen stone. The ornamental ceiling is in buff and gold with the three central panels in delicate clouded effects. The side wall lighting brackets are of very chaste design cast in solid brass and the ceiling fixtures are of white glass in Adam's design.

The foyer, between the lobby and theatre, is decorated in lattice design with a color scheme of dark buff and orange.

The lighting fixture is of lattice design and finished in verde antique bronze.

On entering the theatre one is impressed with the harmony and refined richness of the entire color scheme. The carpets throughout are of long pile Axminster of a deep rich red. The draperies match. The seats are upholstered in Spanish leather in color to match the carpets and draperies. The wood work throughout the theatre is of oak and finished to a deep rich weathered effect. The wood work of the chairs is finished in the same way. The scheme of painted decorations throughout is done in different shades of old ivory, tan, and gold and combined in such a manner as to produce a most harmonious effect. The large mural painting, which is the main decorative feature of the sounding board, introduces just a sufficient amount of color to give a rich note to the entire color scheme. The theme of the paint-



LOBBY OF THE 81ST STREET THEATRE.

Artificial Marble: Architectural Plastering Co.

Thomas W. Lamb, Architect.

J. D. Harrison, Supervising Architect.

ing is music and dancing. The illuminated proscenium arch forms a rich and elegant frame around the entire stage opening. The frame work is finished in old gold, while the glass is of a mottled texture producing a rich golden glow.

The whole scheme of decoration has been carried out with the idea of producing an untiring and pleasing effect for the patrons who, in a house of this kind, attend the performances once or twice a week. Much study has been exercised in

planning this house. There is not a single seat in the house from which a full view of the stage is not obtainable. The acoustics are practically perfect.

The entire theatre is heated and ventilated by mechanical draught; two multi-blade fans in the basement and one propeller fan on the roof are employed to make a complete change of air throughout the theatre every eleven minutes. In summer the air is cooled by driving the fresh air through artificially cooled coils.



THE 81ST STREET THEATRE ON BROADWAY, NEW YORK.
Rockwood Sprinkler Equipment.

Thomas W. Lamb, Architect.
J. D. Harrison, Supervising Architect.



DETAIL OF THE 81ST STREET THEATRE AT THE TOP AND THE CANDLER THEATRE BELOW.
Interior Decorations: Arthur Brounet.

Thomas W. Lamb, Architect.



BOXES IN THE 81ST STREET THEATRE.
 Chairs: Thonet Bros. Thomas W. Lamb, Architect.
 Ornamental Plaster: McNulty Bros., Inc. J. D. Harrison, Supervising Architect.



BOXES IN THE CANDLER THEATRE.
 Ornamental Plaster: Architectural Plastering Co.
 Interior Decorations: Arthur Brounet.
 Switchboard and Stage Electric Equipment:
 Edwards Electrical Construction Co.
 Switchboard and Panel Boards manufactured by
 Metropolitan Electric Mfg. Co.



CANDLER THEATRE IN THE CANDLER BUILDING, NEW YORK.

Fireproof Windows: S. H. Pomeroy Co., Inc.

Star Expansion Bolts.

Electrical Contractors: Edwards Electrical Construction Co.

Ornamental Plaster: Architectural Plastering Co.

Interior Decorations: Arthur Brounet.

Bommer Spring Hinges.

Thomas W. Lamb, Architect.

FIRE PREVENTION

Comments by EDWARD ROCHIE HARDY

We Burn a "Salem" Every Month

In a sense wholly different from its use intended, Salem has been the bright spot on the map the past month. On June the 25th this noted fire occurred, beginning at 2 o'clock in the afternoon and burning for twelve hours. Something like final returns have now been received, and the total insurance loss is estimated to be \$11,730,561. The property appears to have been very well covered by insurance; doubtless a safe conclusion is that the above represents 80 per cent of the value of the property destroyed, so if it be loaded one-fourth we would have a total property destruction of \$14,663,201.

It seems to take something as large as a Salem fire to fix the public attention on the enormous waste. Great as the loss is it does have the advantage of helping to focus public attention on the problem. The passage by the Massachusetts Legislature of the Fire Hazards Bill, which lifts the protective standard not only in Boston but in many of the surrounding towns, and to other towns and cities who choose to come under the act, was made possible by the Salem fire. That positive

good has resulted, and in Providence and other places there is a distinctly quickened sense in the community in regard to the problem of fire waste.

The hope may be expressed that in Salem a very high standard for better building and prevention may be set. It too frequently happens that after such a fire the pressure to rebuild at once is so great that not unfrequently even poorer standards are accepted under the emergency than were possible before the blaze. The peculiar position of Salem, however, in the history and thought of the community, the noble traditions which surround it make and made an appeal for better things which probably will not be ignored. The results in San Francisco, despite the enormous loss of the 1906 conflagration, were not what could have been desired or expected after so sharp a lesson.

It was the writer's privilege to visit the Salem ruins and to spend many hours in tramping around. The clean-cut way in which the fire did its work shows the combustible material of which the city was built. It also illustrates the intense heat generated by such a volume of burning material. The brick



HALLWAY IN THE RESIDENCE OF MR. LAWRENCE L. GILLESPIE.
Ornamental Iron Stair Rail: Wm. H. Jackson Co.
Imitation Caen Stone: Jacobson & Co.



RESIDENCE OF MR. LAWRENCE L. GILLESPIE,
11 E. 89TH STREET, NEW YORK

A. C. Jackson, Architect.

Ornamental Iron Gates and Doors: Wm. H. Jackson Co.

structures were few, and even their walls in most instances did not stand. The chimneys, like stricken sentinels, towered above the burnt spot with something like a mute appeal that the homes and properties which may surround them in the new building will be of such a standard that a repetition of the disaster will be impossible.

The most notable thing probably in the whole fire, and the one which really distinguishes it from all other conflagrations since the invention of sprinklers, was the clean-cut way in which it picked up several sprinklered risks and treated them just precisely as though they were not sprinklered. The important plant of the Naumkeag Co., em-

ploying seventeen hundred, and on whom it was estimated eight thousand people were dependent, was, with the exception of two smaller buildings, destroyed. This probably was the first time that sprinklered plants were subjected to so severe a test, and it showed the limitations of the sprinklers in conflagrations, unless the other conditions, structural and protective, were of a high standard.

Of the two buildings of this plant which came through one was a reinforced concrete building, having small windows scarcely larger than an ordinary transom; these were of wired glass in metal frame. This window protection was reinforced on the inside by standard shutters. The heat transmitted to the wired glass melted the fusible links and released the shutters which, dropping into place, effectively prevented the fire from entering the building. The conflagration swept around it, eating up everything clean, but did not raise the temperature inside of the property sufficient to open a sprinkler head. In other words, the building came through apparently as to structure and contents unscathed.

The second property was a smaller structure resembling something of a roundhouse, the roof completely covering it being of conical shape, and covered on the outside with asbestos. This, we believe, was filled with raw cotton and came through unharmed. It is a case where a building, owing to its construction, was capable of preventing the fire from entering, and thus was saved.

Now we burn a "Salem" every month, only we do not realize it. Already in the six months of 1914 we have destroyed property estimated at one hundred and thirty-three millions of dollars. In the same periods, 1912-1913, the losses were respectively, one hundred eighteen, and one hundred thirty-four millions. The Salem loss, which works out above fifteen millions for property destruction, is almost the equivalent of one whole month's loss for the six months period, 1914, and yet it makes an impression because it comes in one blow, which is not the case apparently when we burn our "Salems" bit by bit. Perhaps there was some truth in the idea of a person who, proposing to cut off his dog's tail, cut off a little piece each day because he said he thought it would not hurt as much. Apparently when we burn our "Salem" a piece at a time it does not seem to hurt or affect the community as much as when we do it at one fell stroke.

The shingle roof which did its full part in assisting, as it always does at such a time, will probably find it more difficult to stand up in the face of criticism than it has in the past. Certainly it is a modest standard for any community to demand that the roofs of their buildings shall at least be of non-wooden material.



INTERIORS OF THE RESIDENCE OF MR. LAWRENCE L. GILLESPIE.
 Ornamental and Plain Plastering: Jacobson & Co.
 Electrical Contractors: J. Livingston & Co., Inc.

Forest Fires

Excellent work is being done by the Government as well as many of the States in the handling and prevention of forest fires. In 1913 there were 4,520 of these fires, double the number of 1912. The latter, however, was an especially favorable year for a small fire loss. Fifty per cent of the fires are, under the system of watch service, detected and put out before they have covered one-fourth of an acre; another 25 per cent before they cover ten acres. In only twenty-five fires did the damage exceed \$1,000 loss. As to causes, the railroad locomotive with its sparks appears to be second, causing 12 per cent in 1913 as against 19 per cent in 1912. The rapid introduction of spark arresters is having its effect, and in some cases the oil burning engines are being used. Many of the fires which may be classed as incendiary but which are really based on a false theory, are started by persons who wish to make a "light burning," as it is termed over the property. The theory is fallacious. The Forest Department states that it spoils the standing timber, robs the forest soil of its ability to retain moisture, and prevents the reproduction of the forest as the good seeds have been destroyed before they had a chance to get a good start. Lightning, strangely to say, in both 1912 and 1913, caused the largest number of fires.

The National Department co-operates with any State Department contributing a sum not exceeding \$10,000 to any State that is already actively engaged in forest fire prevention work. The sum must not in any case exceed that expended by the State itself. The money appropriated by the National Government must be used solely for the payment of lookout watchmen or patrolmen.

A Comparison

In a recent Consular report the following was noted:

One living in Belgrade is impressed with the infrequency of fires. The losses therefrom are small. There are few wooden structures, the buildings are not high, and are largely detached or semidetached. Buildings are usually heated with big built-in stoves in the individual rooms. In this city of 100,000 the average annual losses from fires during the decade 1899-1908 were only \$11,700.

Compare this with the loss in New York City, which, for the year 1913, was about \$7,500,000, that is the property loss. Assuming a population of five million this would make a loss of \$150,000 for each 100,000 population. The year 1913 was the smallest fire loss in many years, and yet even this shows, as against the European city with which comparison is made, a loss fifteen times as great per 100,000.

Changes in Fire Losses

Hearings are being held all over the State or at the important centers in order to secure a broad basis on which to formulate changes in the present laws governing factory conditions principally from the safety standpoint. The problem is one of the utmost difficulty, owing to the large number of old buildings which are affected by any proposed change in their structure. The increased outlay all too frequently cannot be covered by an increased rent, and makes the building without an increased rent unprofitable. There are cases where the use of the upper floors are being discontinued rather than comply with the somewhat radical changes required under the new laws, this being the cheaper of the two choices which the owner has. The safety campaign now in full swing is one which will require many



BRONZE DOORS OF THE NEW HAVEN
COUNTY COURT HOUSE.

Cast by the John Polachek Bronze & Iron Co.



THE NATIONAL BISCUIT COMPANY'S NEW BUILDING, 10TH AVENUE AND 15TH STREET,
NEW YORK. A. G. Zimmerman, Architect.

Builders: Cauldwell-Wingate Co.
Front Brick: Hay Walker Brick Co.
Otis Elevators.
Bommer Hinges.
Panels: Metropolitan Electric Mfg. Co.
Maple Floors: A. W. Burritt Co.

Evans' "Crescent" Expansion Bolts.
Chicago Spring Butts.
Loomis-Manning Filters.
Barrett Specification Roof.
Cement Floors: Harrison & Meyer.

years for its full working out, and the human factor in the case furnishes no small part of the problem. If one felt sure that every physical change of the property would automatically do the thing expected of it, perhaps the plea for modifications would not be so insistent. The records show that safety appliances in industrial accidents affect only about one-fourth of the accidents that occur, that is, they are effective in reducing to that extent, but beyond that is the large number which cannot be affected by structural changes or automatic devices. It is very largely after all a problem of dealing with humans, and that is something which the Commission can only touch to a slight extent.

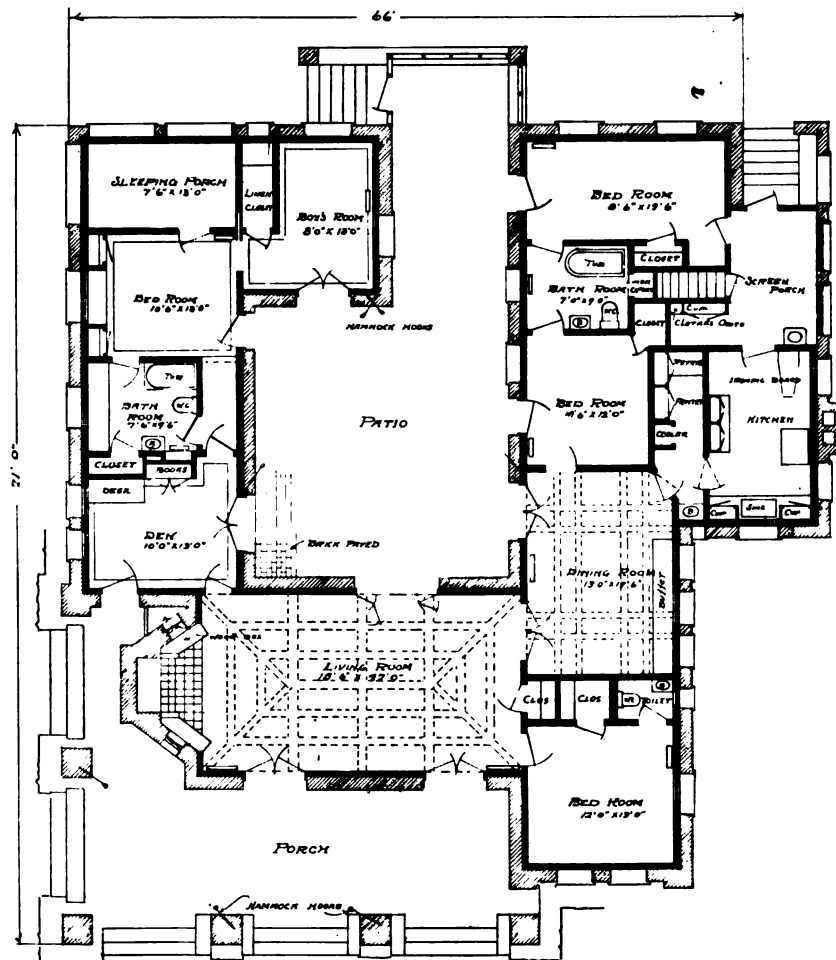
Smoking in Factories

This question, which, since the Asch fire, has been an important one, is recognized by all concerned as somewhat difficult of enforcement. In the hearings now taking place before the State Industrial Board efforts are being made to have this stringent anti-smoking rule in factories modified. In view of the almost certain fact that the Asch fire was caused by smoking, it is exceedingly doubtful if any change will be made. Possibly not so much harm would result if it were not for the cigarette smoking. The cigarette continues to burn after it is thrown down, and as it usually will strike a pile of rubbish fires all too frequently result.



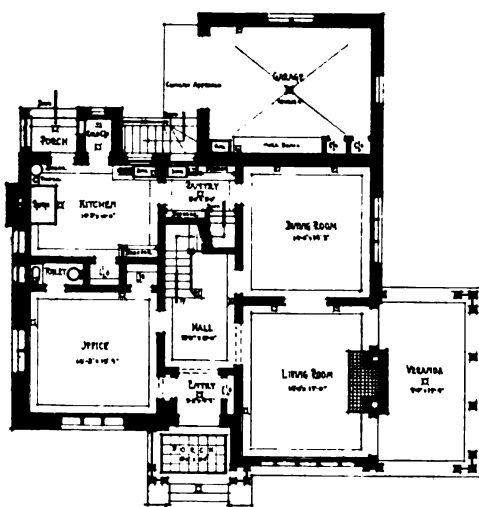
BUNGALOW FOR MR. LEE C. PITZER.

Robert H. Orr, Architect.



BUNGALOW AT POMONA, CAL., BUILT FOR MR. LEE C. PITZER.

Robert H. Orr, Architect.



FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE ERECTED FOR DR. PERRY HEATH AT D ELAFIELD ESTATES BY STANDARD BUILDINGS, INC.

Mann and McNeill, Architects.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

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Number 8

When the practice of architecture was divorced from the business of building in the days of not so long ago, and the theoretical or conception department of those twain—which are, nevertheless as one and inseparable as anything that I know of—went in one direction and the practical or execution department went in another, the seed of a great argument was planted and took root. There arose a burning question after each job: Which was responsible—which one did it, the architect or the builder?

I began to observe it years ago. A certain owner in New York City has been building one or two buildings at a time almost uninterruptedly for the last fifteen years. He always employs an architect to do the architecture and a builder to do the building. Very simple and very natural, of course.

But there is evidence that some kind of an argument is started after each operation is finished, for there's always a shake-up when the next one is done. The first that I saw had a famous builder who began life, he boasted, as a journeyman and "who made by force his merit known" to the extent of mounting to the top of his profession. It always makes me smile when I read of these people who become great from nothing, because I don't believe one man in ten million becomes great any other way. They all start the same, with very rare exceptions, whether Rockefeller or Carnegie, —or at least they all used to. Architects, they say, do not. They must either inherit money or marry it to become great, but if that is true is not the marrying of money an achievement as great as getting it any other honorable way? Few that I ever heard of inherited money, or if they did and became great there was almost always some ambitious poor young man to help them to their greatness.

But this is getting off the text. The famous builder that was building the job that I am talking about had a famous architect for his running mate and when the work was done there must have been an inquest.

The next building that our owner built had the same builder but a different architect. But I fear me that dissension of some kind must have followed its completion for the next one had a still different architect—but the same builder.

Then came the beginning of the new order. Another building was started, and there was a firm of architects of the newer kind, the business kind, I call them, for the architects stuck when the thing was over. Another building followed with the same combination, the newer architects and the old builder.

That must have been the beginning of the end, for there is another building going up somewhere within a thousand miles of Broadway and the builder's name is not on it. The work is being parceled out and a mason contractor has his part of it.

In this particular case the architectural end of the argument has won. I will say more. The architect has swallowed the builder and become the *de facto* builder himself.

Architecture as a fine art and architecture as a business are two different things, but it's hard to teach artist architects the cold facts and thereby save their noble profession from the grasping clutch of commercialism.

Architecture in this "higher" sense and sculpture are alike in that very few good monuments are built in spite of the mighty efforts that are put forth. Judging by results, by the buildings that are really good—let alone great—the whole thing is a tempest in a teapot, and this or that artist's fine frenzy, his work of art, this building that has been halted and dragged for months and months and months and the expenses piled up and the owner disappointed at the delays—this fine building that is built to make an architect's monument is generally devoid of any merit except to the eyes of its designer.

The fact is that owners shun these artists nowadays as they would the plague. They are beginning to find out what so many people have found out about so many institutions, that they are a bluff.

Perhaps the last ones to find this out will be the architects themselves, although that is but natural. Surrounded as they all are, the business ones as well as the artists, by an army of sycophantic and flattering contractors and builders, what else could be expected?

In the case of the owner that I spoke of who at first eliminated the architects after his various experiences or experiments but finally eliminated the builder, one might say that poetic justice was well exemplified. But the case is typical of a great movement.

The architect of the kind that is going is a creation of the builders. They have tried to perpetuate a system in which the architect knows nothing except—what? Well, his creators, the builders, wanted him to know nothing at all but his beautiful architecture. And the more finicky he was about this the better they liked it. The more changes, the more destruction of this or that feature to try a different effect, the more they, the builders, could charge and make the owner pay.

That was an early stage of the game. The trade union was part of that game. It was the goat. Blame it all on the unions and the walking delegates.

To perpetuate this condition all kinds of schemes were resorted to. The profession of architecture became surrounded by a halo—not of light but of something—something that could not be seen through. The architect was made to be a character absolved from responsibility. Like the king he could do no wrong. His favor made or unmade men.

Volumes could be told about this group or that group of jolly builders that figured in this or that office—and assumed therefore to own it—and the way in which they kept interlopers out. Nothing scared one of these simponpure architects more than the thought of having some outlander builder do his work, to take liberties with it, to disregard his whims, to stand on his rights in case of a dispute, to go to the owner, perhaps, and tell him about some rank omission from the specifications or drawings which might have been said to be intended for an opening for some favorite contractor to drive an ox cart through and load it with thousands of dollars of extras.

Stories could be told of the inveterate dislike of some of the established architects for the new style builders, and of the connipion fits which they had when the new builders were at last forced upon them.

The arguments that I referred to at the beginning of this discourse grew apace. Inquests were held over everything. The revolutionary times that we are in, the increasing demands of the trade unions, the advancing costs, all tended to make uncomfortable the lot of the artist architect because he was the man that the owner held responsible.

No use to fall back on his creators, the builders. They would not help him. In fact the builders evenwhiles were knifing the architect with the owners.

Whatever may be said about the correctness or incorrectness of my statement that there are mighty few beautiful architectural monuments to be found anywhere, it is nevertheless true that their very rarity makes them all the more precious—all the more to be desired and sought for.

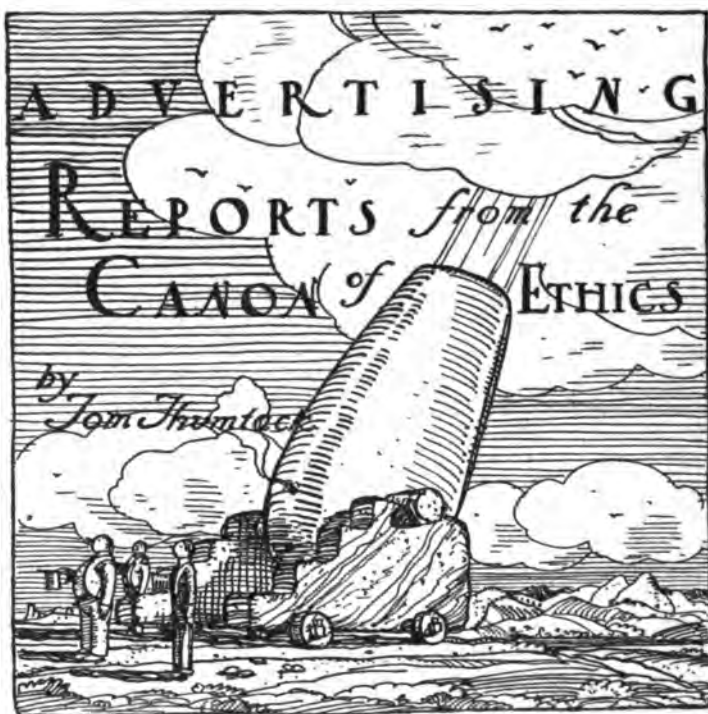
The business architect, subordinating art as the book publisher does, will have no use for famous builders. He will do his own building.

And the old style architect, the artist architect, what will become of him? He will be swallowed, too.

Theodore Starrett.

(To Be Continued.)

ARCHITEC-TONICS



This is a funny story. I'm going to tip you off to it right at the start. It would be a mean trick to let you go on reading it with tear-dimmed eyes, a sigh to every sentence and then when you were all through have some insider tell you that it was funny. Now that you know the truth you may fearlessly affect that pleased expression which you assume when father-in-law essays his prehistoric dialect yarn, or neighbor Smith's infant phenom disturbs the grave of Richard Wagner.

But maybe you like some serious films among your joyful moving pictures. Maybe you know that the humorous vein which runs to the funny-bone starts from a throbbing heart. Many a true word is spoken in jest, and many a jest is but a gay garment over naked truth. So is it with this funny tale. Written about a sentence from the canon of architectural ethics, much play of words is made upon the canon and to just the extent that it is dangerous to play with other firearms just so dangerous is it to trifle with this canon. If I signed my real name to this story they'd carve upon my tomb-stone

those saddest words of tongue or pen, "He didn't know it was loaded."

"It is unprofessional to advertise" is one of its many charges. We architects insist that we never advertise but the public assumes that we do by looking at the daily papers. Here is the trouble. It takes twenty thousand people to support an architect and less than a twentieth of such constituents know one by sight. If the other nineteen thousand ever hear of him at all they read about him. Do they get it straight? Would it not be well to make sure that they do? Just after a famous murder trial I remember hearing a mother say to her buxom daughter, "Quick! Ruth, lock the door! That's an architect coming."

The real reason why the magazines and daily papers show pictures of buildings and leave little doubt as to who designed them is that, if deftly done, it advertises the architect. Don't you recognize this kind of thing? "The beautiful English country house of Mr. Blank Wall of Wall and Broad is a long way from town and gains natural environment by each mile of such seclusion. The suggestion of living in rural seclusion reached readily by motor car came from Mr. Wall's architect, Mr. Tom Thumtack." Note the fine touch! See how he sets the stage! See how he selects the scenery! Gibson used to draw pictures and request you to "Find the young millionaire giving the dinner." In similar vein I ask you to find the author who provided text and pictures for that full page in the Sunday "Herald."

Here's another one taken from a magazine. "The site was a narrow ledge of rock, two hundred feet long by one room wide, and to make the house seem rooted to its rocky ridge and not stranded there by a receding tide was a tremendous task. Yet by composing the building to the hill outlines and making it of native stone and coloring it wood colors like the woods around, the Johnson house is very neighborly to nature. Its architect, Mr. Country-Job who lives hardby," That was a subtle one! You thought that it was the editress of "Suffrage or Suicide" who indited those winged words about the crag and the tide and how well the anchors held and that babes-in-the-woods effect. Or maybe you innocently imagined that Johnson dug down into his jeans to pay for the pictures of his house and then hired Hardup Davis to talk about the tide. Two bad guesses! Charley Country-Job put that across. He lives "hardby" and that tells one where to write.

Here's another. It is short and has the added charm of automatic monthly repetition. It's in the advertising section of an architectural magazine. The man who paid for it makes the boilers. It reads: "House of J. St. Society Early-Dutch, No. 58 North 72nd St., N. Y., James Joinit, Arch't." Then something about boilers. Joinit sent the boiler man the picture. With these broad hints on how-it's-done you can count for yourself just how many architects bring suit for such unwarranted publicity. An armless man could count them on his fingers.

Of ways to get work there be three: Through friends; through strangers seeing the monuments of architectural ability; and through the public seeing pictures of these monuments. Of these the second is the noblest. Sometimes but seldom, by it alone an office is crowded with insistent clients, besieged by those who would go and build likewise. More often the architect does not disdain the kind assistance of his friends, and, I might add with the soft pedal, pianissimo, the kind pocket-book of his relations. It is not unheard-of that the knowing ones deliberately go out to cultivate a wide circle of acquaintances in a fond faith in the mathematical probability that given sufficient diameter to such a circle, it will contain within its perimeter clients enough to fill the office with remunerative work. Sometimes a man holds down his end of a partnership by the number of real-big-ones who let him buy the drinks.



Cultivating people for ends ulterior to friendship is not condemned like advertising. It is excused perhaps because the kindly Bobby Handshaker gives more in entertainment to his circle of boon comrades than he receives in clientage from those within its solid-gold perimeter. The canon may dislike to take a crack at slender Bobby or the gunner may think he works hard enough dodging the kicks and the lorgnettes of the generation-that-made-it to well deserve to drink strange drinks and dance stranger dances with the spenders. Since complimenting Miss Trulie Awful on her looks just before her step-brother, O. Awful Rich, selects an architect is not condemned, it must then be canonical and far better than any form of advertising, which is underscored in the canon of ethics and the primer of how-to-get-work as unprofessional.

But do not these architectural culprits out-number the union men when advertising is taken in all its phases, broad and subtle, which I have just suggested? And if they so outnumber them, and if among the Tom Thumtacks, Johnny Country-Jobs and Jim Joinits we find well-known names and hard-won reputations, is it not possible that the sin of their advertising is condonable and that the canon is on too fine a trigger? Is it not true that the days when advertising was taboo were the days before the star appeared in moving pictures, before the lawyer learned his law in terms of business and before the doctor used the motor? Is it not true that the faster pace of modern business requires a readier channel between the man who buys and the man who sells, between the client and the architect? Should a busy client be obliged to employ the secret-service to find the kind of an architect he needs and then have to measure him by the Bertillon system so that he can find him again when next he needs him?

But stop a minute! A big lawyer told me once not to win every count! Stall through a round or two before you knock him cold. Following his sage advice I'll first load and fire the canon with its accustomed charge.

"Boom! It is unprofessional to advertise."

Now you have your inning, your round, most ethical brother! You have esconced yourself in the professional king-row beside the doctor, the lawyer, and the minister, where, most aesthetically dressed, you may sit and glower across a mighty chasm, at the quack, the scab, the charlatan. Meanwhile I have made up a new charge for the canon which your very noblesse obliges you to send echoing and reverberating among the hilltops of the elect.

"It is professional to educate."

This is the modern sentiment of science, church and school. It has sent missionaries into the wilds and teachers over all lands of enlightenment. Such education is more needed now in architecture than was printing before Guttenburg. Architecture is not alchemy to hide in a hovel amid glowing furnaces. The public doesn't know what architecture is or what an architect looks like or where his duties start and where they stop. Many a layman thinks he is a kind of educated builder who is different from the other kind only in that he can make blue-prints. Another thinks he is a chalk-talk artist who draws a building every hour, and that a good dinner more than pays him for his effort. For these and other reasons many a layman believes and practices that its pilot is the most readily dispensable of all his building crew. As did the little girl with artichokes, so the public confuses him with many other kinds of things. "An architect is a kind of cabbage all green outside and nothing inside. Mother likes them more than father." The United States Senate is convinced that the American Institute is a drawing trust. Ask the next man you meet how to pronounce A-R-C-H-I-T-E-C-T.

Such country-wide ignorance about our profession is not only degrading to it, but actually dangerous as is every kind of ignorance. Provide then for the canon this new ammunition. "It is Professional to Educate."



NEW GENERAL OFFICE BUILDING FOR THE BROOKLYN UNION GAS COMPANY

By WM. PHILLIPS COMSTOCK

ON the south side of Remsen Street, Brooklyn, adjoining the old building of the Brooklyn Union Gas Co. on the west, is the new office building for that company. It has a limestone facade with a granite base. The frontage is 100 feet, and the height eight stories. Of simple design, styled from classic motifs, it gives a first impression of substantiality and of wholesome good construction which is borne out by an examination of the interior. While many large public service companies erect architectural monuments, not infrequently of grandiose pretensions, this building, which cannot be criticised for any lack of architectural adornment where necessary, is above all a service building. It furnishes healthful, agreeable surroundings for all employees. Its accommodation and interior finish are reflected in the smiles of the office force, which tell more truly than words the effect of comfortable working conditions, the most potent factor in producing high efficiency of service.

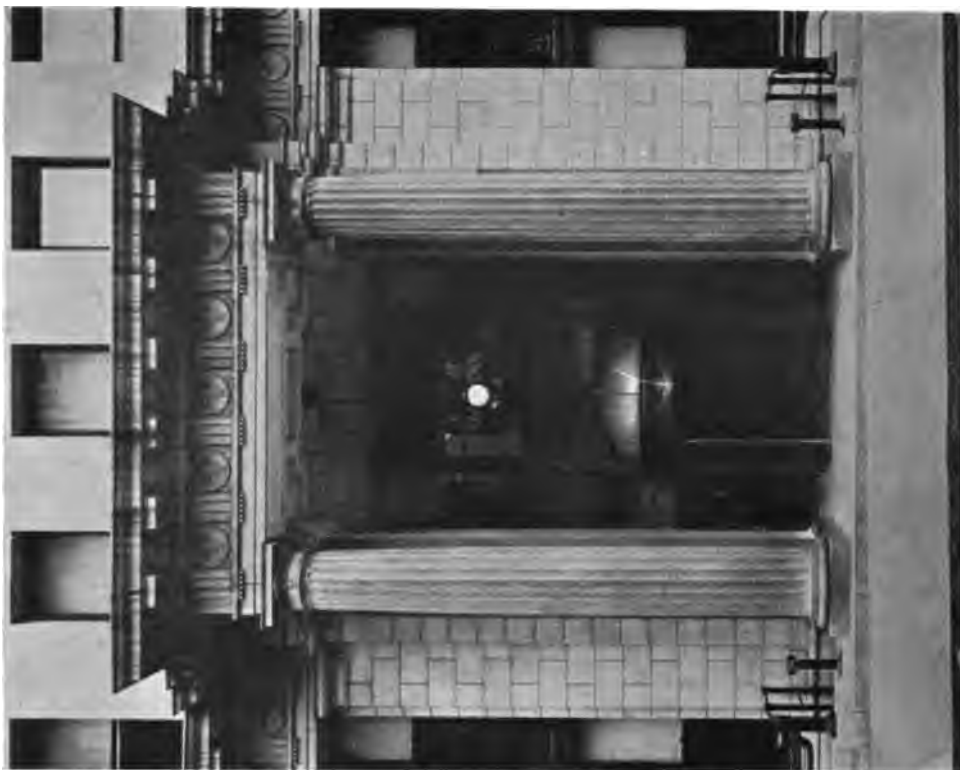
The first floor is at street level, and immediately within the entrance vestibule is the corridor which furnishes approach to the elevators, with the two stairways at either end. To the right of the entrance are the offices of the manager of the commercial or gas appliances department. To the left of the entrance are display rooms, and at the end of the corridor is the entrance into the old building, which is to be made over into show rooms and a demonstration department for gas appliances. Immediately opposite the entrance, passing through an arch, the public office

of the "Brooklyn Branch" is located in a spacious, high-storied room illuminated with a central, elliptical-domed skylight. The principal architectural adornment of the building is concentrated in this first story and best displayed in this room. Polished Majestic grey marble is used for counter bases, pilasters and columns. The counter screens are of bronze and glass, and for the use of customers sev-



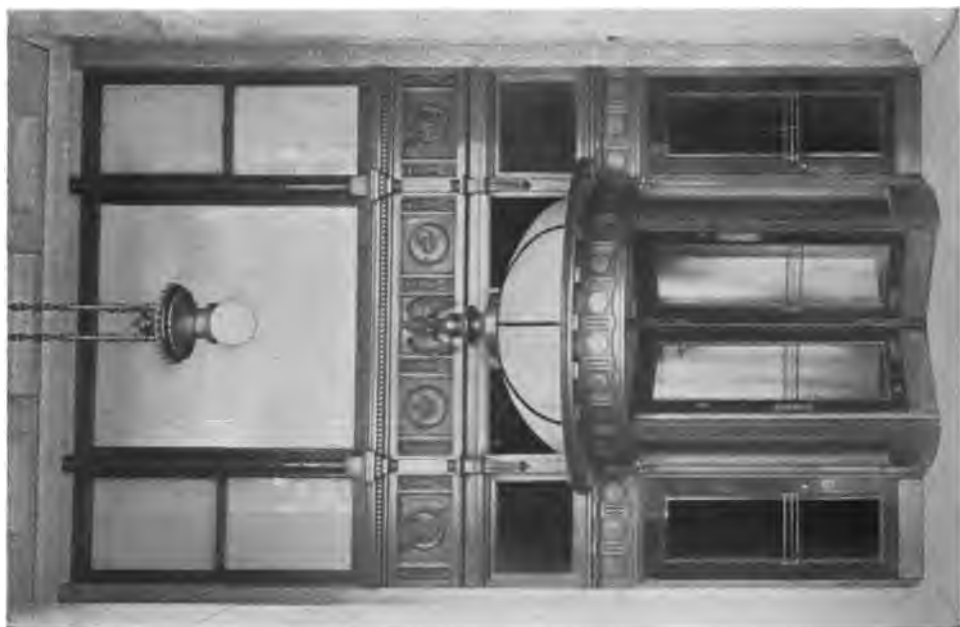
BRONZE WINDOW PANELS OF THE MAIN
STORY.

By the John Polachek Bronze & Iron Co.



Frank Freeman, Architect

GRANITE PORTICO AND VESTIBULE IN BRONZE.



Bronze Cast by John Polachek Bronze & Iron Co.
Cut Stone: John R. Smith's Son, Inc.



THE BROOKLYN UNION GAS COMPANY BUILDING, 172 REMSEN STREET, BROOKLYN, N. Y.

Builders: George A. Fuller Co.
Cut Stone: John R. Smith's Son, Inc.
Court Brick: Hay Walker Brick Co.
Bommer Spring Hinges.
Loomis-Manning Filters.
A. B. See Electric Elevators.
Brooklyn Vault Lights.
Electrical Contractors: Commercial Construction Co.

Frank Freeman, Architect



DETAILS IN THE "BROOKLYN BRANCH" OFFICE.



Builders: George A. Fuller Co.
Marble Work: Batterson & Eisele.



THE "BROOKLYN BRANCH" OFFICE IN THE MAIN STORY.

Frank Freeman, Architect

Marble Work: Batterson & Eisele.

Bronze Work: John Polachek Bronze & Iron Co.

eral large marble tables and benches of a design usually found in banking rooms, are conveniently placed. The walls and ceiling are of Caen stone. A balcony runs along the front wall of the room, giving access to the various rooms on the mezzanine and approach on either side to the two triple-decked vaults for the storage of books and records. In the mezzanine is located the photometer room for testing the candle power of the gas, and adjoining it is a laboratory where tests of the gas may be made with every convenience at hand. The offices of the purchasing department are also located in this mezzanine.

The purpose of erecting the building was to concentrate under one roof, for better co-ordination and greater economy in the service, the departments formerly scattered over Brooklyn; and from the second story to the seventh the building is occupied by the various departments of the gas company, thus bringing about 300 employees into one building, thereby tending to greater efficiency, and a very considerable saving in the operating expenses—results of a well-planned equipment.

The sixth floor is the executive floor, and contains the offices of the President and Vice-president and their secretaries, the Treasurer, Secretary, Assistant Secretary and Auditor; and a library for reference works in connection with the business. In addition, there is a large room for the clerks of the Auditing Department, with a book vault, and a commodious room which is set aside for the convenience of the Public Service Commission. Contrary to the usual custom of furnishing elaborately decorated and richly appointed rooms for the officers, there is little to distinguish the rooms of the principal officers from those in any other part of the building. The interior trim is the same plainly moulded mahogany which is used elsewhere throughout the building. The walls are painted a warm buff and except for simple fireplaces furnished with gas logs, the rooms are without architectural adornment. The aim throughout is a serviceable equipment.

The seventh floor contains the drafting room, construction department, offices of the construction engineer, and an au-

ditorium where may be gathered the heads of departments to receive general directions, and for lectures and other educational purposes. This story is 15 feet high and contains a mezzanine which is used for the storage of prints and plans used in connection with the construction department. A dumb waiter connects it with a commodious blue print room in a pent house.

On the fifth floor, directly below the executive floor, is the claim department, with the offices of the chief engineer and the engineer in charge of the manufacturing of gas, the telephone room which contains the gas company exchange, the third largest in Brooklyn, and the addressograph department. The last occupies one rear wing of the building and is naturally lighted from three sides, giving excellent working quarters for the force of girls who do the addressing of the bills upon addressograph machines.

Another branch of the service, that of Distribution, which has to do with the handling of the gas into and out of the holders and its ultimate delivery to the customer, is located on the third floor. Here a dispatcher sits at a desk and keeps a constant record of the amount of gas to be delivered; he is in constant touch with the manufacturing plants, so that the production and reserve supply in holders is always sufficient to meet the demands of the service. This floor also contains the Street Department and it is probable that in the future these departments will expand to occupy space on the second floor which is as yet unassigned. The fourth floor, also unassigned, provides for future expansion of other portions of the service.

In describing the uses of the building, the important features of its construction which make the service efficient must not be overlooked. Above the first floor, the building is U-shaped in plan, with a large rear light court which gives outside windows to every office and room. Two A. B. See elevators are installed, and a shaft for a third. There are two stair wells at either side toward the front which are shut off from the floors by hollow steel doors and trim matching the mahogany in finish. The windows are set in hollow bronze sash and trim, and are glazed with wire glass on all ex-



THE ELEVATOR LOBBY, THE AUDITORIUM AND THE ADDRESSOGRAPH ROOM.
 Marble Work: Batterson & Eisele.
 Painting and Decorating: John R. Woods.
 Panel Boards: Metropolitan Electric Mfg. Co.
 Electrical Contractors: Commercial Construction Co.

posures. The floors of all the working rooms are covered with linoleum. On the east wall there is a fire tower with entrances from each story and an entrance from the east stairway at each story. The heating is by direct radiation operated by a vacuum system, with the exception of the main office in the first story, for which indirect heating is employed in part. There is a dual system of ventilation. In the basement there are exhaust fans drawing air from the first story and basement, and a forced draught supply provides air through an air washer to the same area. In the eighth story is an exhaust fan which draws the air from all the upper floors with the exception of the fifth and the seventh. The water supply is from two sources. City water, which is filtered and pumped to a tank in the eighth story, is used for supplying wash basins and drinking fountains throughout the building. The drinking water is chilled by a refrigeration plant in the basement. Artesian well water is used for fire lines and for flushing purposes. This is pumped to a large tank in the eighth story. The outlet for ordinary use is so located in

the tank that 5,000 gallons are constantly held in reserve for the standpipe supply. These standpipes, which are 4-inch, are placed in each stair well, and connected by a loop in the basement. They have also the usual street fire plug connection.

The basement contains the mechanical equipment already described, the boilers and various pumps. All piping is carried through two ducts running under the basement floor and vertical ducts rising near the elevator shafts and near the stair wells. The lighting of the building is by gas and is ornamental as well as efficient.

The architect of the building was Frank Freeman, and it was built by the George A. Fuller Company. Batterson and Eisele did the interior marble work, and the interior and exterior bronze was executed by the John Polachek Bronze and Iron Company. The cut stone work was done by John R. Smith's Son, Inc. The painting and decorating was done by John R. Woods and Henry Miles and Sons supplied the mantels and andirons in several rooms for the chief officers.



VICE-PRESIDENT'S ROOM.

Mantel and Andirons: Henry Miles & Son.
Metropolitan Detachable Receptacles.
Electrical Contractors: Commercial Construction Co.

RAILROAD BRANCH, Y. M. C. A., NEW YORK

WARREN & WETMORE, Architects

THE first impression upon entering the new Railroad Men's Y. M. C. A. building is that of a well appointed and we may even say luxurious club, and this is what the building really should be to the railroad man, closely associated as it is with the great Grand Central Terminal with its multitude of employees. It has all the facilities of a fine hotel or club, and we may say, is the equal of most of them and differs from them only in the matter of price. The cost of membership and the charge for accommodations in the building are such that it is within the means of any regular railroad employee.

To describe the building, the first floor has a great lobby with a social room at one end and a billiard room at the other. The social room has game tables, newspapers, a piano, and a great fireplace which should be the center of social gatherings. The billiard room is equipped with six tables and the charges are nominal. The offices are in the centre of the building, back of the lobby.

The whole of the second story is occupied by the restaurant and kitchen. Meals are served at all hours, day and night, good meals at charges no higher than the cheapest restaurants.

Upon the third floor is the comfortable library, the two-story gymnasium,

the bowling alleys and, in fact, complete equipment for educational and recreational purposes. The charges for the use of the gymnasium are in addition to the membership and charges for various classes in the night school are, of course, additional. Additional educational privileges are provided in connection with the West Side Branch.

Upon the fourth floor there is a locker room and a small lecture room. The stories from the fifth to the seventh contain sleeping rooms. There are single rooms which may be engaged for 30 cents for 12 hours, and double rooms which are available at the rate of 20 cents per person for the same length of time. Eventually the roof will be equipped as a summer garden, with space for entertainments and meetings, as well as with handball courts and a tennis court.

The building was designed by Warren and Wetmore, and built by the John Pierce Co. The structural engineers were Balcom and Darrow, and the plumbing contractors the W. G. Cornell Company, the plumbing fixtures being furnished by the J. D. Johnson Company.

The Hay Walker Brick Company furnished the front brick which makes the exterior so attractive, and the face brick



LARGE KITCHEN ON THE SECOND FLOOR.

Kitchen Equipment: Bernard Gloekler Co.

Silver Service: International Silver Co.



**THE LARGE BILLIARD
ROOM IN THE
FIRST STORY.**

Windsor Furniture:
Brooklyn Chair Co.

**FOUR BOWLING AL-
LEYS ADJOIN THE
GYMNASIUM IN
THE THIRD
STORY.**

Installed by the Bruns-
wick-Balke-Collender
Co.



THE GENERAL LAVATORY, FIRST STORY.
Plumbing Fixtures furnished by J. D. Johnson Co.
Flush Valves: Murray & Sorensen.

with which the gymnasium is lined. The electrical contractors were J. Livingston and Company, Inc. L. Barth and Son did the interior furnishing of the building and the Bernard Gloekler Company supplied the kitchen equipment. The silver service was made by the International Silver Company. Dining room chairs and game room furniture were made by the Brooklyn Chair Company, and the Wagner Furniture Company supplied the upholstered chairs and lounges. The bowling alleys were put in by the Brunswick-Balke-Collender Company. Bernard Brindze & Company held the contract for painting and decorating.

Mr. Ward W. Adair is the secretary of this branch and is always ready to answer questions about the building and its purposes.



THE RAILROAD BRANCH YOUNG MEN'S CHRISTIAN ASSOCIATION, 309 PARK AVENUE, NEW YORK.
 General Contractors: John Peirce Co.
 Plumbing Contractors: W. G. Cornell Co.
 Front Brick: Hay Walker Brick Co.
 Electrical Contractors: J. Livingston & Co., Inc.
 Otis Elevators.
 Evans "Crescent" Expansion Bolts.

Warren & Wetmore, Architects.
 Balcom & Darrow, Structural Engineers.

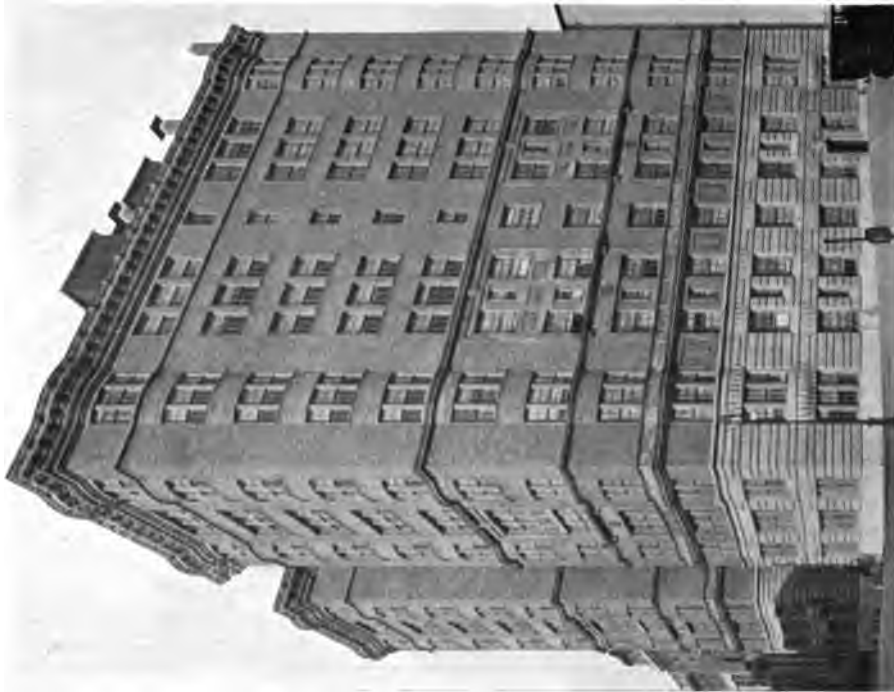


THE LOBBY AND SOCIAL ROOM, FIRST STORY, RAILROAD BRANCH Y. M. C. A.
 Grant Overhead Pulleys.
 Interior Furnishings: L. Barth & Son.
 Upholstered Furniture: Wagner Furniture Co.
 Star Expansion Bolts.
 Painting and Decorating: Bernard Brindze & Co.
 Stanley Transom Butts.



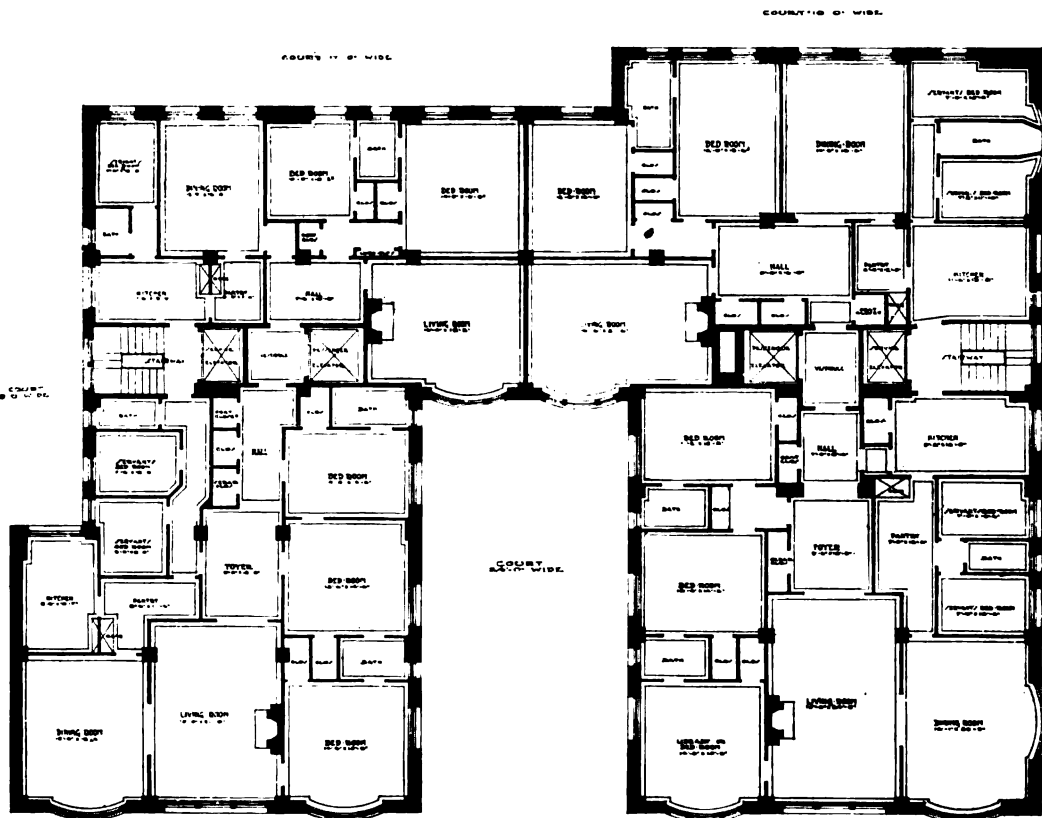
THE LIBRARY AND THE DINING ROOM, RAILROAD BRANCH Y. M. C. A.

Electrical Contractors: J. Livingston & Co., Inc.
 Interior Furnishings: L. Barth & Son.
 Silver Service: International Silver Co.
 Chairs: Brooklyn Chair Co.
 Upholstered Furniture: Wagner Furniture Co.
 Painting and Decorating: Bernard Brindze & Co.



Herbert Lucas, Architect.

APARTMENT HOUSE AT 11 E. 68TH STREET, NEW YORK.



MADISON AVE

Otis Elevators.
Plumbing Contractors: W. G. Cornell Co.

EAST 68TH STREET



APARTMENT HOUSE AT 11 E. 68TH STREET, NEW YORK.
Furniture and Decorations: John H. Hutaft. Herbert Lucas, Architect.

PROGRESSIVE ARCHITECTURAL CONSTRUCTION

By FREDERICK SQUIRES

Plate VII.—The Stucco Covered Hollow Tile House

IN writing a series of articles on progressive architectural construction a chapter on stucco-covered hollow tile is inevitable. To every architect's mind, no matter what his final judgment on their merits, progress in house design always suggests hollow tile and concrete. It is the proof of a real designer when he can take a new problem and get a beautiful result. I do not altogether mean that he shall act entirely by feeling to the banishment of rule but that he solve each new problem on its merits under the eye of his training.

The man with technical training, good taste and originality has a wonderful chance in working with new material. He is vaccinated as it were by education against making a mistake.

In this house for Mr. Rupert Hughes, hollow tile has been used for the walls, tile and concrete for the floors and the structural part of the intersected barrel

vault is of Guastavino construction, a tile of another breed and using cement mortar for its adhesive quality, whereas the floor construction combines concrete and steel in regular beam capacity.

Guastavino's invention has been so generally used in such well known structures as St. Paul's Chapel at Columbia University, the Williamsburgh Bridge approaches and the Grand Central Station that only by comparison may it be called progressive.

The Hughes house is a finished product. It gives no hint of being in any way limited by the material of which it is built. It is architecture progressively constructed. Nevertheless it is the progressive aspect of this building which is best worth noting. For our times are progressive, you cannot doubt it. Building is old, but modern building is so different from ancient building that it is just as true to say that building is new.



RESIDENCE OF MR. RUPERT HUGHES, BEDFORD HILLS, N. Y.

Aymar Embury II, Architect.



INTERIORS IN THE RESIDENCE OF MR. RUPERT HUGHES.
Mantels: Wm. H. Jackson Co. Aymar Embury II, Architect.



THE TUTWILER HOTEL, BIRMINGHAM, ALA.

Builders: Wells Brothers Company.

W. L. Stoddard and Wm. Leslie Welton, Architects.

Otis Elevators.

Evans' "Crescent" Expansion Bolts.

Cement Floors and Sidewalks: Harrison & Meyer.

Switchboard: Metropolitan Electric Mfg. Co.

Star Expansion Bolts.

Revolving Doors: The Atchison Revolving Door Co.



THE LOBBY OF THE TUTWILER HOTEL.

Ornamental Iron: Harris H. Uris Iron Works.
 Bulletin Board: U. S. Changeable Sign So.
 Painting: The Barker Painting Co.
 Decorative Embroideries and Laces: B. Saubiac and Son.
 Furniture and Draperies designed by Lyman W. Cleveland.
 Cutler Mail Chutes.



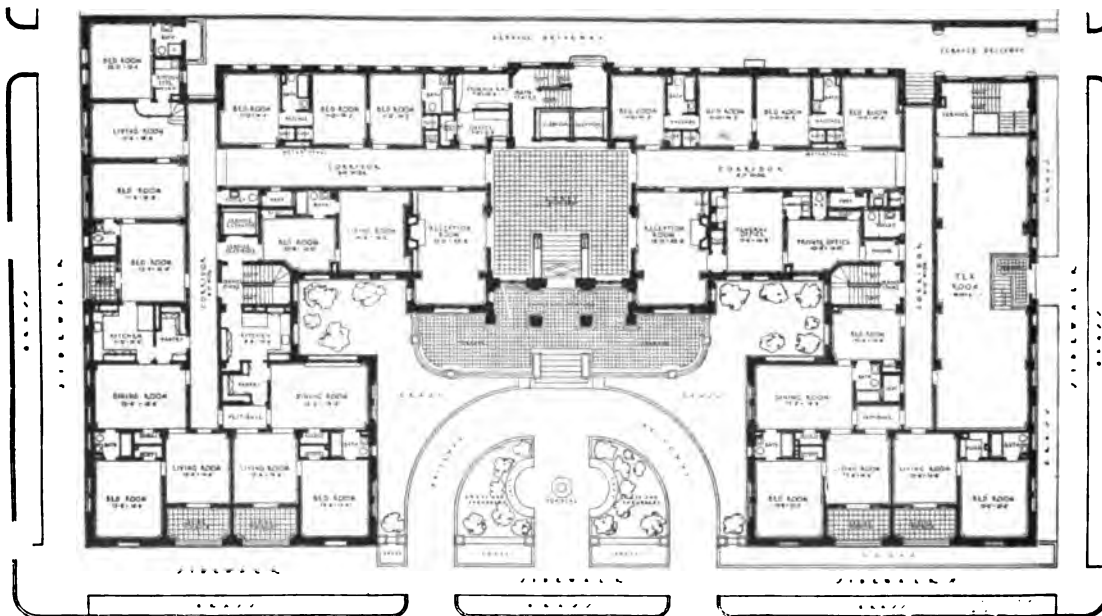
THE LOUNGE ON THE MAIN STORY MEZZANINE AND THE BALL AND BANQUET ROOM
OF THE TUTWILER HOTEL.

Builders: Wells Brothers Company.
Painting: The Barker Painting Co.
Decorative Embroideries and Laces: B. Saubiac and Son.



THE DINING ROOM OF THE TUTWILER HOTEL.

Ornamental Iron: Harris H. Uris Iron Works. W. L. Stoddard and Wm. Leslie Welton, Architects.
 Tables made by The Reischmann Co.
 Silver Service: International Silver Co.
 Furniture and Draperies designed by Lyman W. Cleveland.
 Decorative Embroideries and Laces: B. Saubiac and Son.
 Automatic Sprinklers: Automatic Sprinkler Co. of America.



MAIN STORY PLAN AND ENTRANCE HALL OF THE RIDGELY APARTMENTS, BIRMINGHAM, ALA.
 Otis Elevators.
 Ornamental Iron: Harris H. Uris Iron Works.
 Painting: The Barker Painting Co.

J. E. R. Carpenter, Architect.



TYPICAL STORY PLAN AND EXTERIOR OF THE RIDGELY APARTMENTS.

Builders: Wells Brothers Company.
 Cement Floors and Sidewalks: Harrison & Meyer.
 Furnishing and Draperies: W. P. Nelson Co.
 Cutler Mail Chutes.



MARQUISE OF THE TUTWILER HOTEL.



ENTRANCE COURT OF THE RIDGELY APARTMENTS.

Ornamental Iron: Harris H. Uris Iron Works.
 Cement Floors and Sidewalks: Harrison & Meyer.
 Revolving Doors: The Atchison Revolving Door Co.



THE BERGEN COUNTY COURT HOUSE, HACKENSACK, N. J.

James Riely Gordon, Architect.

Builders: John T. Brady & Co.
A. B. See Elevators.



THE BERGEN COUNTY COURT HOUSE ROTUNDA.

Builders: John T. Brady & Co.
A. B. See Elevators.
Artificial Marble: Michael Nocenti Co.
Cutler Mail Chutes.



THE BERGEN COUNTY COURT HOUSE. SUPREME COURT AND CRIMINAL COURT.
 Interior Woodwork: Jennings & Welstead.
 Chairs: Brooklyn Chair Co.
 James Riely Gordon, Architect.



Ornamental Plaster: Architectural Plastering Co., Inc.
 Carrara Marble Altar: Frederick Pustet & Co.
 Bronze Spring Hinges
 Pews, Stalls and Furniture: Josephinum Church Furniture Co.



ST. JOSEPH'S CHURCH, PACIFIC STREET, BROOKLYN, N. Y.

Francis J. Berlenbach, Architect.

FIRE PREVENTION

Comments by EDWARD ROCHIE HARDY

The Fireproof Building.

The exhibit of fireproof structures in this number, being the highest type in their different departments, makes it perhaps a bit fitting to comment this month on this type of structure and its development from a fire prevention standpoint.

There was published in France in the year 1750 a book bearing the title "The Manner of Securing All Sorts of Buildings from Fire." It attracted the attention of an Englishman who some years later translated it. The volume is exceedingly interesting and makes a modern feel that we are not so far advanced after all, but are merely working over the old materials which have been handed down to us.

Until the early part of the 19th century, however, this work and others of a like nature represented more or less sporadic efforts as a solution of the subject. The cotton mill at Manchester of Messrs. Phillip & Lee, built in 1801, is generally cited as the earliest example of what we might call a modern fireproof construction. Indeed, no advance was made over that early type until the invention of modern steel construction.

The floors in the early buildings erected were of tiles laid in the concrete placed on the top of the arches, but, as tiles were very cold to the feet of the mill operatives, boards were usually substituted in the later erections. The boards were nailed to wooden joists or battens placed flush with the top of the concrete. Where tiles were used, or the wooden flooring boards were nailed flush with the concrete, there was no cavity under, but in some buildings the wooden joists were simply placed on the crown on each arch, with the result that a space was left under the boards along which a fire would travel.

Terra cotta arose shortly after the Chicago fire in 1871. Hollow tile arches (flat) were first patented and introduced in Chicago in 1872, by George H. Johnson, and these arches were first used in the Kendall Building, afterward called the Equitable Building. The arch was of the flat type. The next advance was about 1878 and 1879, when a lighter form of hollow tile arch was used in the Chicago City Hall building. It was levelled up with concrete and weighed about 40 pounds per square foot. In 1881 the Montauk Building was built in Chicago, and was the first of the modern high office buildings erected in that city, or erected elsewhere.

Skeleton construction and cage construction grew out of the attempt to secure build-

ings with thinner walls and hence save space. Where the buildings, i. e., the walls, had to be sufficiently strong to carry the weight of the floors and their own weight, it is obvious that the walls must be exceptionally thick. When, in 1883, The Home Insurance Company erected a building in Chicago, the architect, Jenney, departed from the solid masonry wall and introduced iron columns into the walls to carry the weight of the floors. By thus relieving the walls of the floor weight they only need to be strong enough to carry their own weight and were thus made much thinner. A few years later, when the Tower Building was erected in New York City, at



ST. JOSEPH'S CHURCH, BROOKLYN, N. Y.
Builders: John H. Parker Co.

50 Broadway, the lot was very narrow, and the architect, Gilbert, conceived the idea of having the skeleton construction carry not only the weight of the floors but also the weight of the walls. By this means a wall could be further reduced since it only needed to act as a curtain.

In the United States there are twelve million buildings. We have not counted them recently, but the best statements to be had confirm these figures. The total number of fireproof buildings probably does not exceed more than twelve thousand, all told, or about 1/10 of 1%. Should any one fear that we may suddenly become a fireproof nation so far as structures are concerned, the above statistics may calm his troubled soul.

Many lessons have been learned from the fire prevention standpoint since the beginning of the modern structure after the Chicago fire. These lessons, representing cardinal principles, may be set forth under these headings:

(a) The metal work must in all cases be thoroughly protected from direct damage by fire. Four inches is deemed a high standard and two inches is frequently accepted. The important point, however, is not the thickness between two and four, but the fact that all metal members must be protected and not exposed to the direct action of fire.

(b) The woodwork in the building should be reduced to the minimum or protected with

metal. In the most modern type there are no wooden floors and all the trim is metal protected. With the size and height of the modern structure wooden floors alone add a small lumber pile to the structure, and when wooden trim is coupled with that the lumber pile becomes of a goodly size.

(c) The floor openings must reach the very highest standard. There were objections to the old type of door at floor openings, but modern development has given us doors which while of the highest fire resisting quality are still excellent in appearance. The objection can no longer hold that the fire door is so unsightly as to prohibit its use.

(d) The exterior openings—and this we are finding it slow to learn—must be protected against exterior fires. The protection also is of value against an interior fire spreading from one floor to another, using the outside windows as a means of climbing up. The modern wired glass window is not objectionable, but there is what might be termed a psychological objection, as the renting agent finds many of his tenants objecting to it and will advise the owner not to put it in. The objection was stated by one tenant to the effect that it made him feel like looking out of a chicken coop. But this in due time will pass away and we shall come to have the exterior openings well protected against an outside fire.

(e) Wherever possible—and it is possible in more properties than is now thought to be the case—the properties should be protected with sprinklers. If, as in the case of an apartment house, they cannot be installed throughout, the portions below grade should at least be taken care of in this manner, since that is where the fire is more apt to originate.

A building erected containing the five virtues outlined above will give an excellent account of itself even in a conflagration. This was illustrated by the Salem fire in the case of the warehouse of the Waumkeag Mills.



NORTH SIDE ALTAR IN
ST. JOSEPH'S CHURCH
Made by Frederick Pustet & Co.

Not Covered by Insurance

The view is quite prevalent that the losses by fire are covered by insurance. We do not mean now the mistaken idea that property destroyed, although the direct owner receives his pay from the insurance company, is not a loss to the community but the other one that the system of insurance is so well developed that most burnt property is insured. In point on this subject is the report of the Fire Marshal for May, 1914, State of Kansas, of total property destroyed two-thirds or \$121,000 was covered by insurance policies, the remainder, \$61,000, was not so covered.

BUILDING FOR THE PAINE FURNITURE CO., BOSTON, MASS.

DENSMORE & LE CLEAR, Architects

The size of this building is not particularly apparent from the photograph, as the frontage is 272 feet and the depth is 100 feet. There are ten stories giving the building a total height of 125 feet. The available floor space is approximately 275,000 square feet.

The exterior is of limestone and grey brick. The interior is plainly finished throughout the show rooms, with partitions of Circassian walnut dividing off the office portions. There are seven Otis elevators and three stairways. All the stairways and five of the elevators extend the full height of the building. The building is protected by automatic sprinklers against fire risk, and the lighting system is of the semi-indirect type throughout, the fixtures being furnished by the McKenney and Waterbury Co.

The rear of the building overlooks an alley and the windows are set in metal

sash supplied by the S. H. Pomeroy Company, Inc.

The division of the building for commercial purposes provides large space in both the basement and first story for receiving and shipping goods, and also for the main offices. There are show rooms in the basement, first story, and on all floors up to and including the seventh. The eighth, ninth and tenth stories provide necessary storage space and repair and finishing rooms.

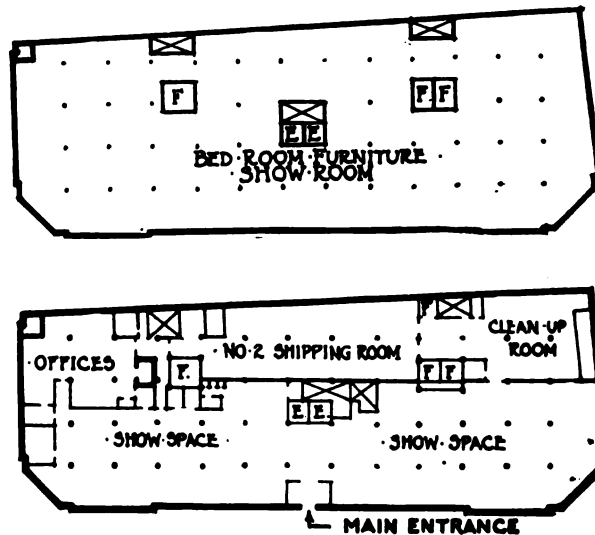
The shipping department of the first floor opens upon the alley in the rear of the building so that there is the utmost facility provided for the handling and shipping of bulky merchandise. There are four freight elevators, three of which are of large size and connect all floors. The other one is a special lift running between the basement and first story shipping rooms



FIRST STORY SHOW ROOM, 270 FEET LONG.

Lighting Fixtures: McKenney & Waterbury Co.
Grant Overhead Pulleys.

Stanley Ball Bearing Butts.



PAINE FURNITURE COMPANY BUILDING, ARLINGTON STREET AND ST. JAMES AVENUE,
BOSTON, MASS.

Builders: James Stewart & Co.
Otis Elevators.
Fireproof Windows: S. H. Pomeroy Co., Inc.
Evan's "Crescent" Expansion Bolts.
Diamond Ball Bearing Door Hangers.
"American" Enamel Brick used.

Densmore & LeClear, Architects.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

Volume XLVI

SEPTEMBER, 1914

Number 9

This is no easy task—this one of endeavoring to elevate the public to the point where it will appreciate architecture and at the same time appreciate building.

One of the troubles is that the words used have such broad meanings. The word builder, for instance, means so very much. The word architect has a variety of meanings, metaphorically and literally.

It is a pity that in this particular world of ours, this world of architecture and building, the phraseology is not more exact. It is useless to attempt to give definitions that are specific to this discussion, because it would make it look like a problem in algebra or a railway time table with a key at the bottom of each page, or, what is worse, a key on page 17 or some other page than the one you are reading.

For instance, builder means owner; it means architect, as I can prove; it means builder—you know what it means, it means contractor and that other useful member of society, the general contractor; it means the mason, the carpenter, the rough-neck and so on ad infinitum.

The word architect means—no, you don't catch me giving any definition. In the East every time an architectural draftsman gets his name in the paper by being run over by an automobile or anything he is called an architect. Out West they call them draftsmen.

A clever architect once said that an architect was a draftsman with a job. It sounds all right to me. Maybe you would be interested to make your own definition, gentle reader.

No, we'll have to worry along without definitions and make our meaning clear by the context or by repetition after the manner of a certain colored preacher who, according to the story told by one of the New York newspaper wits, was in the habit of explaining his success with his congregation in these words:

"First Ah tells 'em what Ahm gonna tell 'em; then Ah tells 'em; then Ah tells 'em what Ah done tol' 'em."

Let's see. Oh, yes! I had said that a certain architectural firm swallowed a builder; I went on to say other things that I thought were interesting.

I spoke of the jeopardy that Fine Art architecture stood in through the growth of Utilitarianism, sometimes called Business.

Now, it might be possible to generalize from the swallowing of one builder that all builders will be swallowed. I, for one, think not. Possibly, one kind of a builder will be swallowed.

But there is another kind of builder that has come to the rescue of architecture, and parenthetically I may say that to my mind this part of the story is not without elements of poetic justice, too. I refer to what so many people in the trade call the construction company.

The businesslike construction company was fought by the old system tooth and nail, and the principal allies of the old line builders in this war were the architects who had been told such cock-and-bull stories about the liberties that would be taken with their charming designs, the unfair things that would be done, the rude buffeting they would get if they did not have the drawings and details ready in time and a thousand other fairy tales.

Meanwhile the whole system, architects and builders both, were reckoning without the host—settling everything without even consulting him, the host being the owner.

The whole thing had been a mystery to the owner. Possibly he had heard stories of the high wages which are paid to mechanics and about the hell that the walking delegates used to raise. Perhaps he was an Astorbilt and paid no attention to it.

The combination of artist-architect and famous builder made the building a costly thing to start with and the upkeep and the whimsies of tenants and the competition of newer buildings had shrunk the revenue so that there was hardly enough net income to pay the taxes.

Something had to be done and it was done, and it IS done and the building world is suffering now from the effects of it.

The owner found that his building cost too much and he unchained the dogs of war—I mean competition—to stop it.

The system had at bottom the trade unions and the walking delegates.

Everything connected with building costs double what the same value could be bought for in other lines.

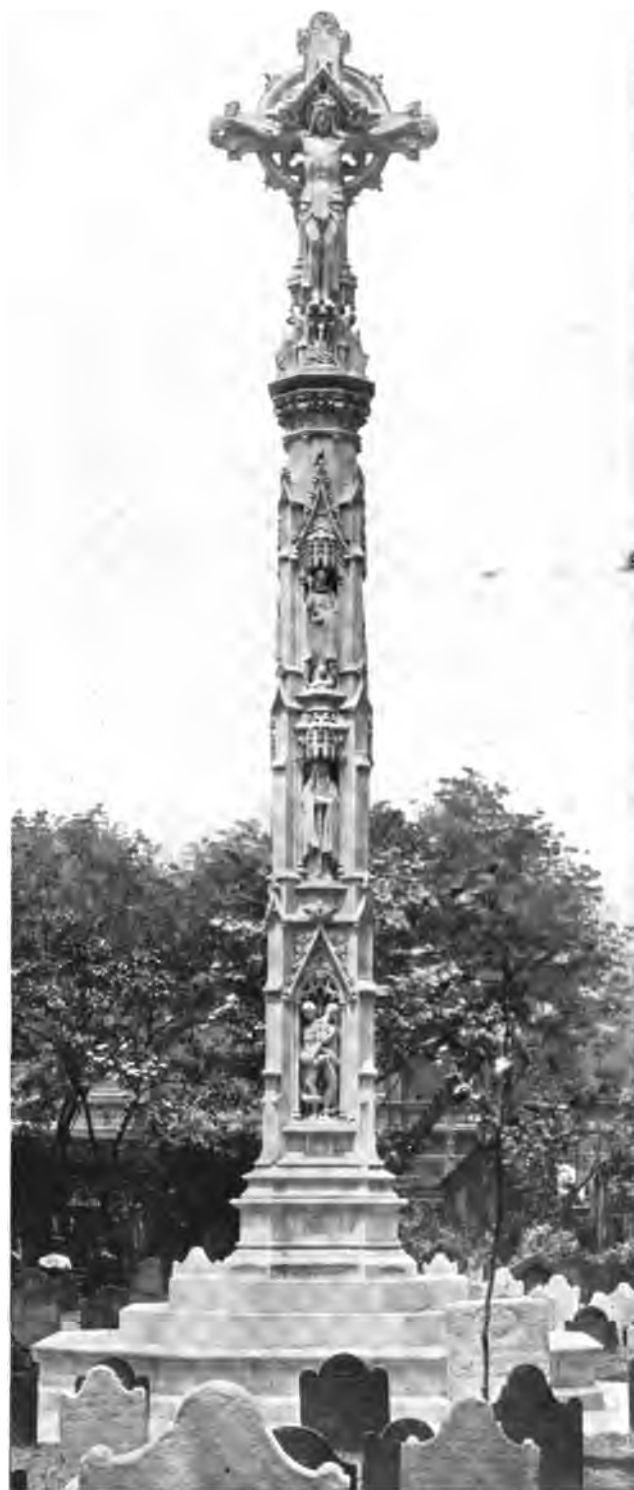
The building world—not the architectural but the building world—was honeycombed with irresponsibility.

The construction company, ignoring the existing regime and unhampered by traditions, now came to the rescue. It really entered the lists in competition with the famous builders, to fight with the builders for the prize. It had no designs on the architectural profession; rather it sought to save it.

It can hardly be said that the corn is waving over the battlefield—yet, but a lot of interesting things have happened. The most interesting is the disappearance of the walking delegate from his old haunts. His legitimate job of looking after his union's interests is all that occupies him now.

Theodore Starrett.

(To be continued)



Courtesy of "Stone."

TRINITY CHURCHYARD CROSS ERECTED IN MEMORY OF MRS. WILLIAM ASTOR.
 Full Scale Model: Irving & Casson. Thomas Nash, Architect.
 (See description on page 372.)



THE FORTY-SECOND STREET FRONT OF THE GRAND CENTRAL STATION, SHOWING THE STATUARY AND CLOCK IN PLACE.
Lime Stone from Quarries of Indiana Quarries Co.
Carved by William Bradley & Son.
Warren & Wetmore and Reed & Stem, Associate Architects.



THE STATUARY GROUP AND CLOCK ON THE GRAND CENTRAL STATION.
Lime Stone from Quarries of Indiana Quarries Co.

Jules Coutan, Sculptor.

FIRE PREVENTION IN HOSPITALS

By EDWARD ROCHIE HARDY

THE hospital, so far as the hazard is concerned, may be compared to the large dwelling. It is possibly more near to this type of risk than to any other type. Hazard, in the sense in which we commonly speak of it in a business property, can hardly be said to exist. It is a type of risk where the fundamental principles of fire prevention apply, namely: good construction and good housekeeping. Coupled with this, of course, there should be good water supply in case of fire, and good tools to use in case of fire. The first two qualifications, however, are pre-eminent because of the nature of a risk.

The statistics gathered by "Safety Engineering," published in June, 1913, show that in risks of this character, that is, the institutional risk, there had been in a period of five years three hundred and twenty-six fires. The property loss was six and a half million dollars, with an average loss per fire of twenty thousand dollars. There were several cases of loss of life in connection with the fires. This report dealt with the institutions which we are considering here and included several different kinds of homes that would not strictly come under this class, but on the percentage of 100, 32 per cent. of the fires were in hospitals.

What were the causes of the fires? Electrical defects in seventeen; defective chimneys and flues in sixteen; defects connected with the heating apparatus, fourteen; laboratory hazards, five; miscellaneous, such as explosions, workmen hazard, the lightning, and various, eighteen; total, eighty fires. Where did these originate? 25 per cent. in the laundry; 18 per cent. in the attic and upper floors; 13 per cent. in the barns and outbuildings; 11 per cent. in the kitchen and bake shops; 10 per cent. in the basement and lower floors, and 23 per cent. in various other quarters of the property. The fires appear to be evenly distributed throughout the year, somewhat larger in November, December and January than in the other months, following the usual course that in those months of the year when the heating apparatus is more usually in commission there are more fires. In a list of sixty-five fires the state of New York ranks first with thirteen, or one-fifth of the total; Pennsylvania and California following with nine each, other States ranging from three to five. In twenty-nine of the fires, covering more than one-fourth of the total loss, there was either a total lack of fire protection or it was so far

below the standard that the fire fighters were severely handicapped in attempting to put the fire out. In regard to private departments or fire brigades in only six cases were they found to be efficient; the losses in these six cases being kept down to small amounts.

This is sufficient to set before us the general condition of our problem. In one respect the hospital has a pre-eminent advantage, almost, over any other type of risk, that is, in regard to the housekeeping as it is now termed. Probably in no other institution, certainly we cannot recall any, is there or ought there to be so high a standard of housekeeping. Absolute cleanliness, which it is estimated would reduce by one-third the fire waste in the United States, can be and we believe is, found in connection with these institutions. The hospitals because of this may overlook the fact that their size today, as compared with that of former times, does introduce problems which do not take care of themselves. It requires someone's intelligent, active and persistent labor to keep them in order. St. Luke's Hospital on Morningside Heights, New York, originated in the desire of Dr. Muhlenberg to found such an institution. The first collection was taken on a St. Luke's day something like 75 years ago, and the collection on that day amounted to \$60.00. It was divided between two charities, one-half going to found the hospital and the other half for some other charitable purpose. To look at St. Luke's today with its large wealth and its property covering a whole block, it seems hardly possible that it could in such a short time have grown from so small a beginning. In its beginning there were but one or two beds in a single room, and we can well see that the problem of caring for that one room with its two beds was exceedingly small. What is the problem today when we have a plant covering a whole block, many stories high, and running at least one, if not two stories below grade in some parts? Unless someone is actively interested in guarding against fire it is inevitable in such a case that the vastness of the plant will permit opportunities for conditions to arise which will start, or if not start, then accelerate a fire when once it is started.

What are the essentials, however, in connection with the problem of the hospital? In the first place we should take the construction. Nothing less than fireproof ought to satisfy us, and the best fireproof at that. This

means that there will be in the building the least amount of material that will feed a fire if it starts, and the material itself will not be of a nature to start a fire. The modern office building is erected with a total absence of wood, or if there be wood as in the case of the trim, then it is metal-covered. Some of the finest structures erected today are of this type, and our hospitals should, with an adaptation to their special needs, conform in material to this type.

Construction alone, of course, is not sufficient. The electric light which has originated fires, must not be neglected. The modern system of installation, if the highest standard be followed, makes it undoubtedly the safest form of light or power that has been invented. It may, however, be carelessly installed. We do not appreciate, however, in connection with this electric light, that after all it has a time limit and needs to be overhauled and looked out for just as other physical things do. We rather expect the electric plant to do its work forever without overhauling the wires. That is a mistake. The lamps of the olden times were cleaned every day. The electric light is not so insistent on care, but it needs it far more than is appreciated and should receive it. Running through the building, out of sight for most part, are the wires. They may by means of a short-circuit originate a fire at many points.

The property should always be divided into different units. None of these structures should be exposed to total destruction or injury by fire. There always should be a division into different wings, and these be cut off from each other by means of solid walls, and where pierced the piercing to be by the standard method. We must remember that after we have done all that we can to avoid a fire it is well to cover the unknown and unforeseen by a provision which will limit a fire to certain sections at least, if it does originate. Not only is this wise from this point of view in that it may save the whole plant from being destroyed, but it may save what is of primary importance, the putting of the whole plant out of commission, and so depriving the community of the service which it should render.

Below grade there is, by common acceptance, the working plant, the boilers, machinery, etc. If there is land enough they ought not to be there, but should be installed at some distance from the main plant, and pipes will serve to convey the power, light and heat necessary for the building; but if it is in the building, and in the worst place where it can be, that is down below, all of this part should be sprinkled so that in its very incipency a fire will be caught. The majority of the fires will originate there in a modern institution. In the statistics quoted many

originated in the attic and upper stories. These were undoubtedly due to defective lighting systems, and in some cases may have been due to carelessness in the use of a match by a patient. Such things are not unknown. In a well guarded and watched plant such things would, of course, not occur. Supervision will avoid that, but the danger will be below where those who are used to the conditions do not expect a fire to start. In many cases they will claim that they never had had a fire and do not see how one could possibly start down there.

In addition to the below grade protection there should be standpipes of ample size, not two inches or anything like that, but pipes of four to six inches, with the best hose and ample water supply. It will increase the cost of the building some to install this equipment, but at any moment it may prove worth its service. In New York City standpipes are being used now in fires in the loft buildings from five to ten times a month. It is well to remember that the water and the means of using it must be available instantly. It will not do to suppose that in some way or other it can be secured when the fire breaks out.

There should be and very easily can be a fire brigade or drill. The attendants in connection with the hospitals are always sufficient to form such a force, and those who are actively interested can have their interest stimulated by being given possibly some slight recognition for that fact. This may be in the shape of increased time off for vacation, or it may be a slight money reward; but in some way those who actively form the brigade should be encouraged. It is as essential to have the brigade as it is to have something for the brigade to use when fire starts. Neither one is complete without the other. There should be throughout, and at convenient intervals, the old reliable fire pail and extinguisher. The fire pail can now be secured in tanks which may be finished to correspond with the finish of the place where it is installed, and it need not be objectionable on account of its unsightly appearance. The chemical extinguisher, owing to the somewhat different purpose for which it may be used in fire fighting, should always supplement but never displace the pail. The latter puts out about one-third of the fires that originate, and has not been, in small fires, improved upon, not counting, of course, the sprinkler. The extinguisher can reach a fire at a height, for instance, on a drapery or curtain where the pail might possibly not be useful. The two devices supplement; they do not take each other's place.

The hospital should always be connected direct to the local Fire Department, and immediately a fire starts the alarm should be turned in even though there is a most ef-

ficient private brigade in connection with the property. Call the public department first and then fight the fire.

The primary purpose, of course, in such institutions, differs from that in a business property. There property is generally of the first consideration; life is respected and due provision made for that, but the ordinary business property is closed more hours than it is open, and fires may originate in that time and

destroy the property as well as when it is open for business, but the hospital is in commission all the time and property saving is of minor consideration and life is all essential. The very nature of its work, the caring for the sick, places upon the hospital a high degree of responsibility. Patients are not in condition usually to help themselves in case of disaster, and the greatest provision should therefore be made to insure safety for them.



ST. ANTHONY'S HOSPITAL, WOODHAVEN, L. I.

Builders: Jacob Zimmermann & Son, Inc.
American Enamelled Brick used.

I. E. Ditmars, Architect.

THE PHIPPS PSYCHIATRIC CLINIC

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.

By J. F. SPRINGER

THE Phipps Psychiatric Clinic is a new building in the Johns Hopkins Hospital group at Baltimore, Md. It provides extensive quarters for the treatment and care of the insane and for research into mental troubles.

It is a U-shaped building whose over-all plan dimensions are about 170 x 200 feet. Including the basement, there are six stories, except on the two side wings, where there are roof gardens on the sixth story level. In the wings, the walls carry the floors; in the front, the floors are carried partly by the walls and partly by steel columns. The foundations are of the spread footing type. The building is of brick, trimmed with bluestone, and conforms in general to the style of architecture dominating the hospital group. The roof is of slate. The steel columns are fireproofed with terra cotta; the floors are of steel and terra cotta, and the partitions are of plaster block. The trim is of wood. Fire escapes are located at the rear ends of the two wings. These are very unlike those with which we are in general familiar, as they have to meet the more severe necessities of suitability for insane and possibly refractory persons. Essentially, they consist of helical chutes winding round and round from the top of the building to or near the ground level. A patient thrust on to the chute is sure to make the trip without further attention, as gravitation does the real work. These special fire escapes were furnished by the Dow Wire & Iron Works.

Between the two wings is located one of the notable features of the scheme. A splendid cloister runs around the three inner walls of the building and completes the circuit on the fourth side by a connecting portico. The space within is devoted to a beautiful garden which contains a small brook and pond. The water to maintain the brook may be taken from the regular city supply or from the waste water resulting from the condensing ar-

rangements of the refrigerating system. The basement provides space for the filters, the hot water heating and refrigerating apparatus, the pumps and the main switchboard for the electric lighting system. The out-patients' clinic and the departments devoted to treatment by hydrotherapeutic and mechano-therapeutic methods are also located in the basement, as well as accommodations for the orderlies. The two elevators, which are absolutely automatic, begin their service at this level. The cooking for the entire hospital is carried on in a special domestic building 500 or 600 feet distant from the Phipps Clinic. Food is brought in by means of an underground tunnel or subway provided with exits on either side of the basement. From these two points, it is despatched by automatic, pushbutton, electric dumb waiters to the several distributing pantries on various floors. The ventilating system used throughout the building makes use of tempered air. Fresh air is drawn in at the basement level by means of suitable fans. An ammonia refrigerating system cools the various refrigerators distributed about the building.

The radiators employed in quarters occupied by the patients are of special, though simple, construction. It is deemed objectionable to use the ordinary radiator because of the abuse to which such articles are liable at the hands of demented people. Perfectly plain heating plates are placed on the side walls. There are thus no mechanical appliances introduced into the spaces accessible to the patients.

It will readily be understood that special provisions are necessary at many window openings against misuse by patients. Guards of grill work are provided which have a more or less ornamental appearance.

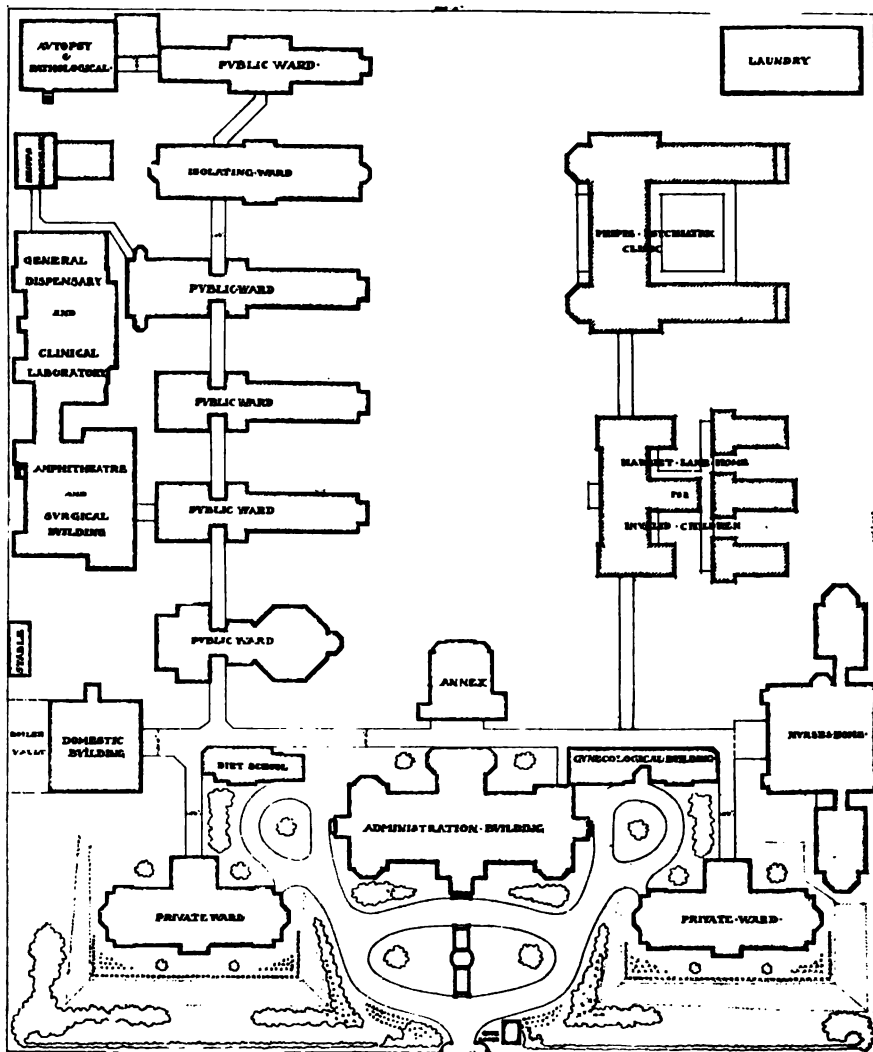
The building is used for training, instruction and research as well as for the housing and treatment of patients. Quar-



COURT GARDEN OF PHIPPS CLINIC ENCLOSED BETWEEN THE WINGS.
 Ornamental Iron: The Wells Architectural Iron Co.
 Evans "Crescent" Expansion Bolts.
 Grant Overhead Pulleys.



Grosvener Atterbury, Architect.



SURVEY OF THE JOHNS HOPKINS HOSPITAL, BALTIMORE, MD., SHOWING THE SITE OF PHIPPS CLINIC.

ters are provided for officers and attendants. Lecture rooms, laboratories, offices, photographers' rooms, recreation rooms and reception rooms are scattered here and there, but mostly in the front wing.

The quarters provided in the building for the mentally deranged are equipped with specially designed hardware. It is important that the hardware shall be so designed that no points of attachment be furnished from which such persons might hang bed clothes or their own clothing and thus provide themselves with a means of suicide. The hinges are of the tight

pin type and so constructed that they cannot be used for suicidal purposes. No knobs are used throughout the building. Instead, a lever handle, standing when in repose at an angle of 45 degrees, is employed. If an attempt is made to attach a slip noose, the moment a weight is applied the noose will slide off. A sash fastener is used of such character as to provide no point of attachment. An interesting precaution takes care of the difficulty an attendant may have in getting a key in the lock in a hurry or in the midst of a tussle. The keyhole is arranged above the lever and the escutcheon pro-

vides a depressed keyway of funnel shape. Wherever a key may be jabbed in this keyway, the key will be guided directly to the keyhole. In connection with the lock fastener used, on the inside sliding shutters rivets are employed instead of screws. An inmate cannot accordingly use a coin or any other substitute for a screw driver. Throughout the building there are several sets of locks controlled by master keys.

Then there is a grand master key which serves to open all these locks. The depressed keyway is used pretty generally throughout the building. The hardware in general was supplied by Sargent & Co.

This building was equipped with special sanitary fixtures, including a complete hydrotherapeutic equipment by the J. L. Mott Iron Works.



THE PHIPPS PSYCHIATRIC CLINIC OF JOHNS HOPKINS HOSPITAL.

Loomis-Manning Filters.
Sargent Hardware
Railings: Penn Brass & Bronze Works.
Otis Elevators.
Mott Hospital Sanitary Appliances.
Hospital Signals: Holtzer-Cabot Elec. Co.

Grosvenor Atterbury, Architect.

SANATORIUM OF THE METROPOLITAN LIFE INSURANCE CO., AT MT. MCGREGOR, N. Y.

D. EVERETT WAID, Architect

THE site of the Mt. McGregor Sanatorium comprises 493 acres near the village of Wilton, New York. It is at an elevation of a little over 1,000 feet above sea level. When all the buildings are completed there will be eight ward buildings, a refectory, an administration building and an infirmary in the main group. In addition, there are the power house, superintendent's house and nurses' cottage. The buildings indicated in solid black on the survey have been completed. To one side of the building group is the cottage where General Grant died, which is owned by a Memorial Association. It is in the midst of the sanatorium property. When the buildings are all completed, there will be a capacity for 229 patients, but the present capacity is for 73 patients, with the staff and employees numbering 45.

The buildings are constructed with rubble stone foundation walls quarried on the site. The walls are of hollow tile stuccoed and the floors and roofs are of con-

crete reinforced. The roof surface is of red tile and the floor surface of cement.

The ward buildings are really not much more than amplified "lean-tos." Patients' reclining chairs and also beds are always out of doors, but under a roof. The space, except in the outer veranda portion, is enclosed with fly-screens and a low balustrade, designed to protect from driving rain and snow. The beds stand two in each alcove, and at the rear of each alcove is a dressing room for two patients, with a water closet between each two dressing rooms. There is one lavatory in each dressing room.

In the central portion of each ward building there are tub bathrooms with showers delivering water at an angle and controlled by valves out of range of the spray, so that in bathing the head may be kept dry.

A social room is also provided, and in the wide halls are specially designed overcoat and hat racks with compartments for umbrellas and overshoes.

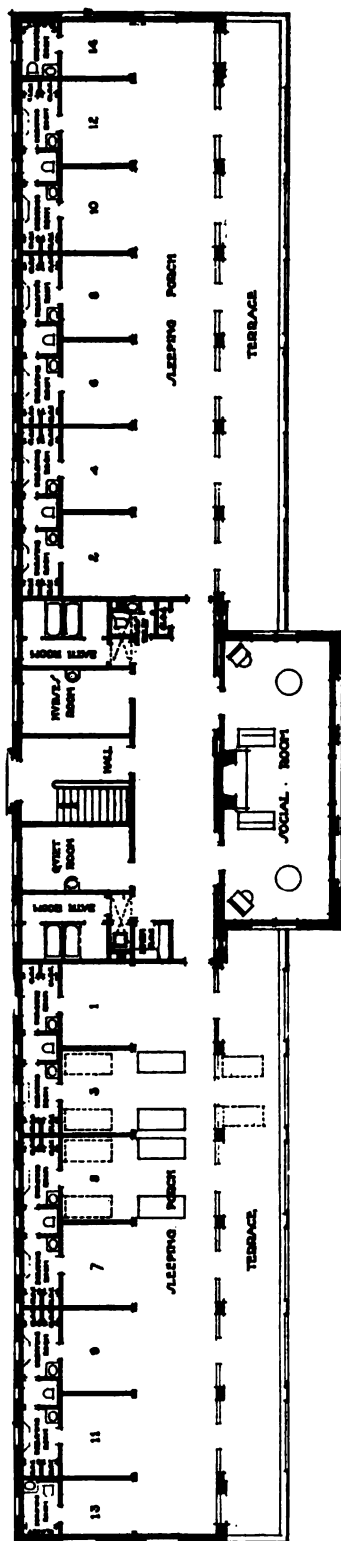


THE TERRACE BEFORE THE SLEEPING PORCH OF A TYPICAL WARD BUILDING.

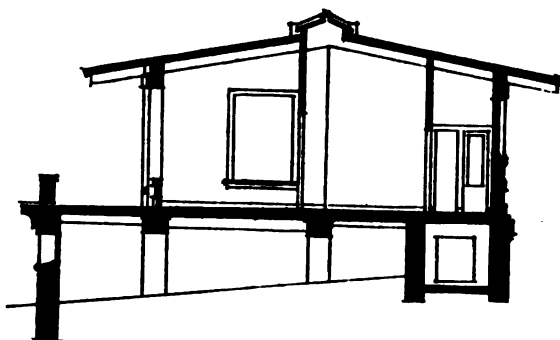


THE REFECTORY AND TWO WARD BUILDINGS AT MOUNT MCGREGOR, NEW YORK.
 Star Expansion Bolts.
 Tile: Wm. H. Jackson Co.
 Otis Elevators.

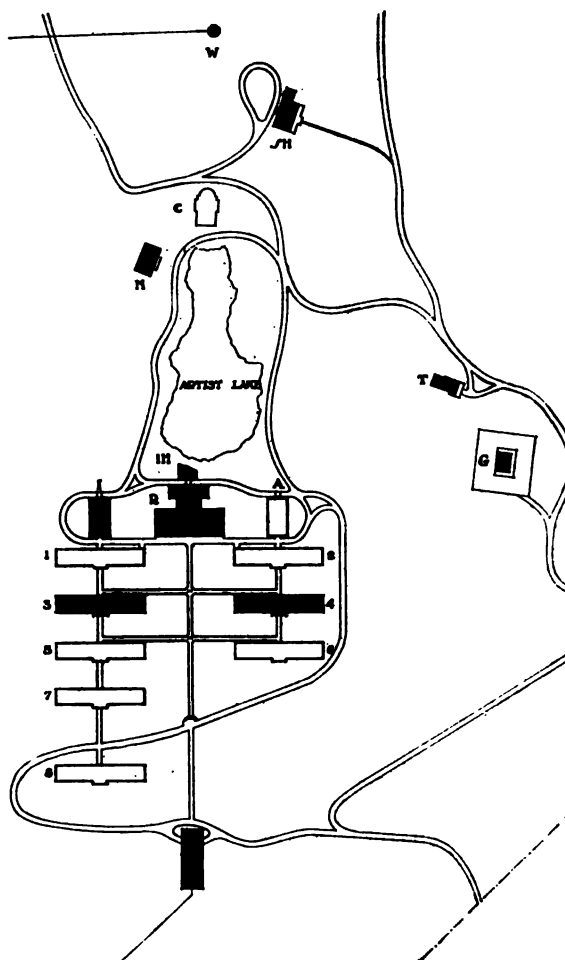
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 D. Everett Waid, Architect.



PLAN OF TYPICAL WARD BUILDING.



SECTION THROUGH THE SLEEPING PORCH



SURVEY OF THE SITE.



SEA VIEW HOSPITAL, STATEN ISLAND, N. Y.
Steel Furniture: Hospital Supply Co.



SEA VIEW HOSPITAL, STATEN ISLAND, N. Y.

RAYMOND F. ALMIRAL, ARCHITECT

THE Sea View Hospital is situated on Staten Island, on a site that is known as Todt Hill. The site contains 25 acres and gradually slopes away from the north. The prevailing winds are southerly and sweep up over the dry pine barrens of New Jersey, making the location a most excellent one for its purpose, that of providing a general hospital for indigent patients suffering from tuberculosis. The hospital is owned by New York City and is administered by the Department of Public Charities.

An article in "The Modern Hospital" by Raymond F. Almira, the architect, well describes the buildings.

"The hospital, when completed, will contain 1,014 beds and will consist of twenty-two buildings, viz.: the administration building, the storage and dining hall building, the congregate chapel and the therapeutic pavilion, located on the minor axis (north to south), and eight ward buildings radiating from the elliptical curve; the nurses' home, the surgical pavilion, the administration building, the staff house, the pathological building, the power house and laundry building, and the ambulance house, located on the major axis (east to west); the two dormitory buildings for men and women help, located to the north of the power house



VISITORS' ROOM IN THE ADMINISTRATION BUILDING.



COVERED CORRIDOR CONNECTING ALL THE BUILDINGS.



SEA VIEW HOSPITAL, STATEN ISLAND, N. Y.

Plumbing Contractor: Edward J. McCabe Co.
 Tiles Made by The Mosaic Tile Co.
 Radial Brick Chimney erected by H. R. Heinicke, Inc.
 Otis Elevators.
 American Side Pulleys.
 Mott Hospital Sanitary Appliances.
 Interior Trim: Eastern Woodworking Co.

Raymond F. Almira, Architect.

and on either side of the entrance roadway; and the residence of the medical superintendent, for which no proper site now exists.

"Those buildings on the minor axis (north and south), which axis divides the men's and women's ward buildings, furnish services common to both sexes, their positions increase efficiency of service and convenience of access. All the buildings, except the two buildings for help and the residence for the medical superintendent, connect with the inclosed corridor.

"The architecture is modern and of no historical or geographical style. A consistent effort has been made to express hospital purpose by simplicity, and by light, air, abundant veranda space and cheerfulness. The buildings are of a light gray color, with horizontal bands and friezes of brilliantly colored faience. The roofs are of red Spanish tile. All buildings are fireproof.

"The wards separate the patients into three groups of twelve and six of six, the rooms being separated from each other and from the corridor between the

two 6-bed divisions, and leading to the 12-bed division, by plate glass windows. Supervision and attendance is made fully as easy as if the same number of beds were contained in one room. The means of segregation offered presents undeniable advantages. The diet kitchen of each ward is separated from one of the six bed divisions by plate glass, and from it the entire three-room ward may be overlooked. The dividing corridor is extended to the northern end of each ward floor. On either side of it are the customary and some additional service rooms, the elevator, and stairs. At the southern end of each ward floor is a large solarium. Casement windows extend to the floor, and on the sash are provided removable framed muslin screens, so arranged, however, that they may be fixed in positions as will deflect any current of air from the bed when the windows are open. The heating surfaces permit raising the temperature of a ward very rapidly."

In the corridors, which are nearly two miles long, the interior trim was placed by the Eastern Woodworking Co.



LAUNDRY BUILDING AND POWER HOUSE AT SEA VIEW.
Radial Brick Chimney erected by H. R. Heinicke, Inc.



THE GROUP OF BELLEVUE HOSPITAL BUILDINGS, NEW YORK CITY, SHOWING THE NEW BUILDINGS TO THE RIGHT AND LEFT OF THE PICTURE.

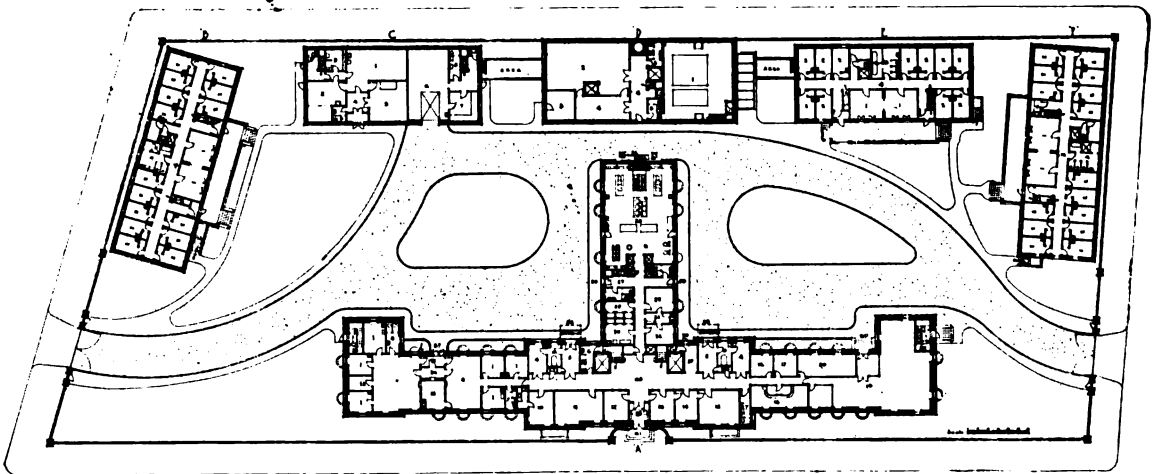


Builders: John T. Brady & Co.



NEW BELLEVUE HOSPITAL BUILDINGS AT THE NORTH END OF THE SITE.

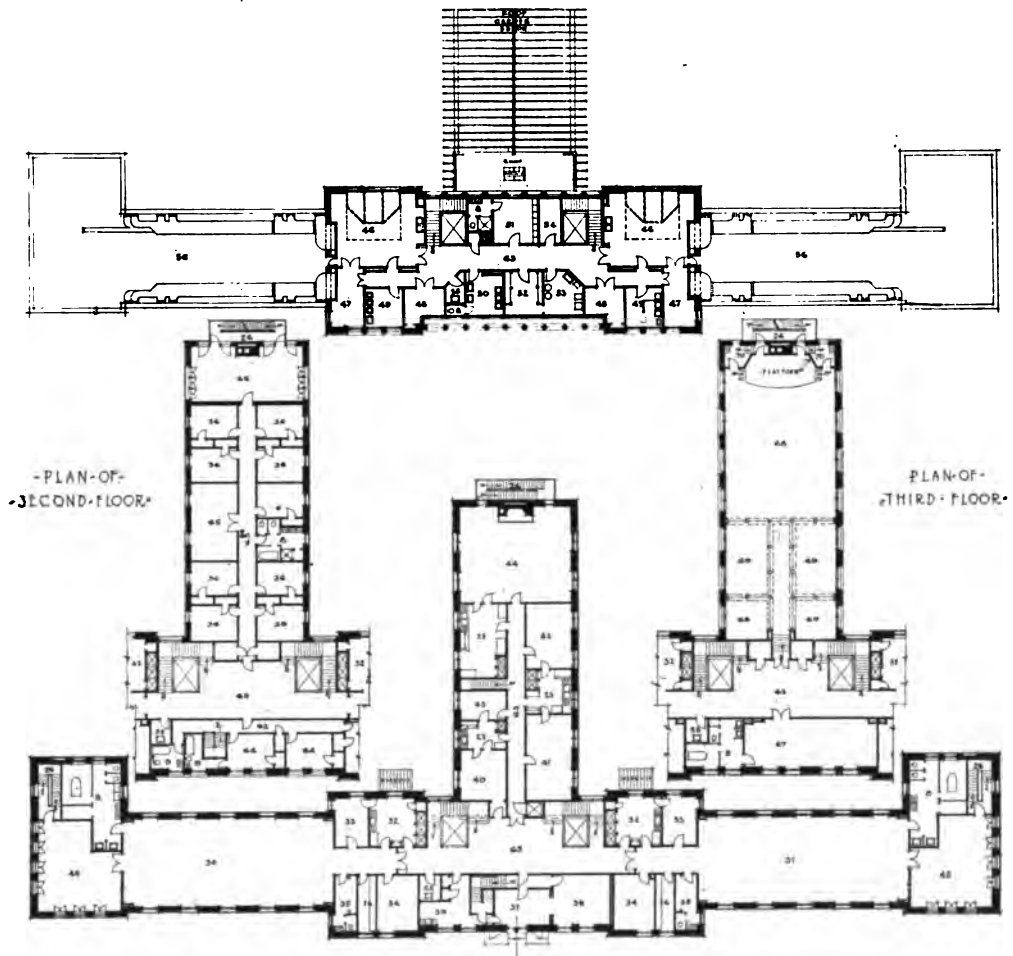
Fireproofing and Metal Lath: Arthur Greenfield, Inc. McKim, Mead & White, Architects.
 Metal Windows and Doors: The Leonard Sheet Metal Works, Inc.
 Terra Cotta: Federal Terra Cotta Co.
 Brass Railings: Penn Brass & Bronze Works.
 Bulletin Boards: U. S. Changeable Sign Co.
 Kitchen Equipment: L. Barth & Son.
 Tile: Wm. H. Jackson Co.
 Wire Screen Work: Wm. O. Chapman Co., Inc.
 Sterilizers: Hospital Supply Co.
 Mott Hospital Sanitary Appliances.



GREENPOINT HOSPITAL, BROOKLYN, N. Y., THE MAIN BUILDING AND GENERAL PLAN.

Builder: Albert Winternitz.
 Ornamental Iron: Hebbard & Wenz.
 Interior Trim: Eastern Woodworking Co.
 Floors: Dreadnought Flooring Co.
 Otis Elevators.
 Grant Casement Fixtures.
 Mott Hospital Sanitary Appliances.

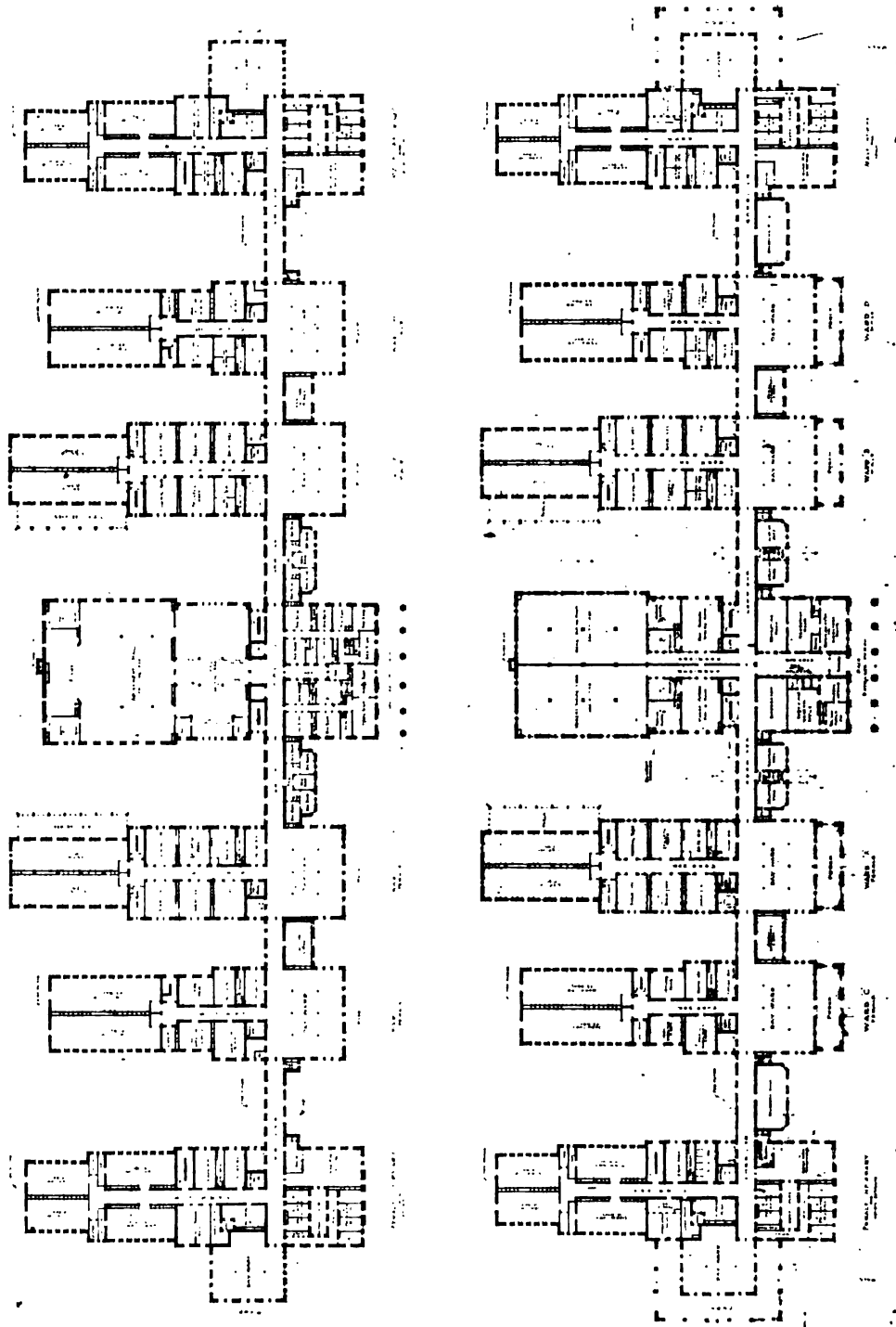
Frank J. Helmle, Architect.



GREENPOINT HOSPITAL BUILDINGS.

Builder: Albert Winternitz.
 Front Brick: C. T. Willard Co.
 Bronze Tablet: Penn Brass & Bronze Works.
 Floors: Dreadnought Flooring Co.
 Sterilizers: Hospital Supply Co.

Frank J. Helmle, Architect.



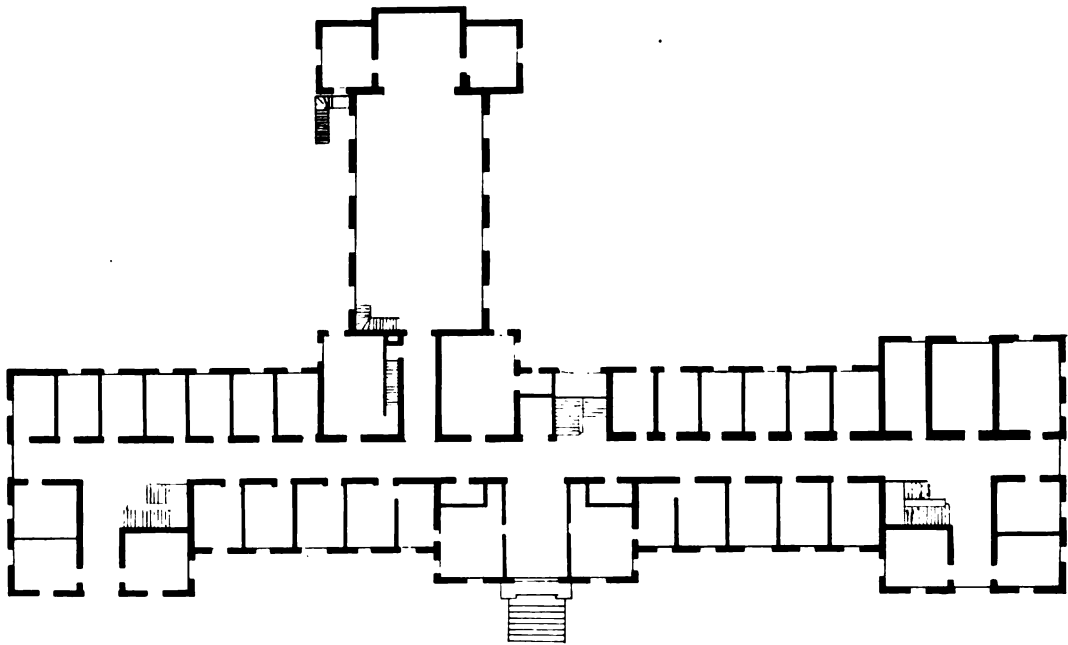
SCHUYLKILL COUNTY HOSPITAL FOR THE INSANE, SCHUYLKILL HAVEN, PA. FIRST AND SECOND STORY PLANS.
 Louis I. Stockton and Henry C. Pelton, Architects Associated.
 Plumbing: W. G. Cornell Company.
 Loomis-Manning Filters.



SCHUYLKILL COUNTY HOSPITAL, SCHUYLKILL HAVEN, PA.

Louis L. Stockton and Henry C. Pelton, Architects Associated.

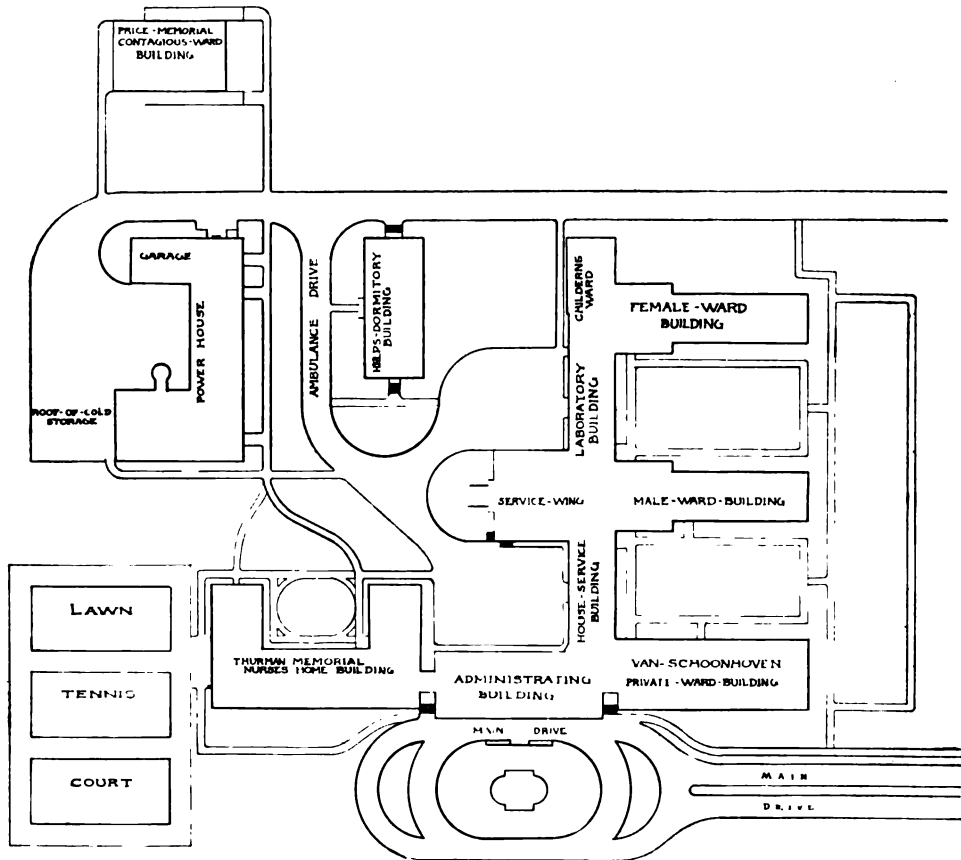
Kitchen Equipment: Bernard Glocker Co.
Decorations and Furnishings: J. R. Bremner Co., Inc.



ST. FRANCIS HOSPITAL, AT WATERLOO, IOWA.

Otis Elevators.
Mott Hospital Sanitary Appliances.

Victor J. Klutho, Architect.

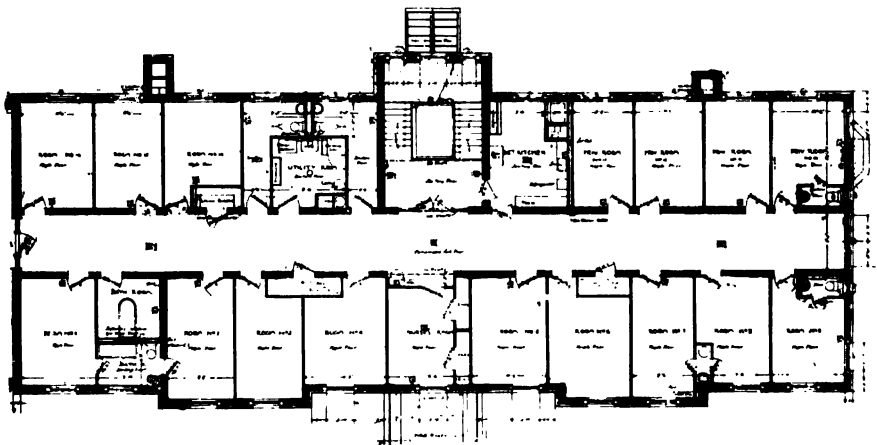
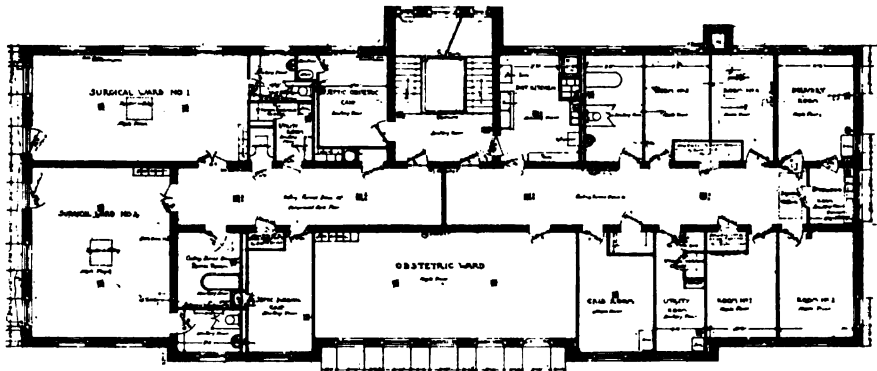
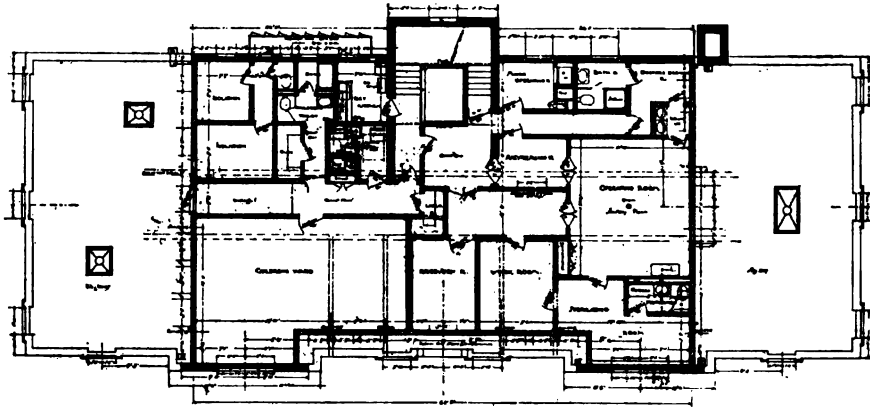


SAMARITAN HOSPITAL, TROY, N. Y.

Builders: Amsterdam Building Co.
 Brick: Cary Brick Co.
 Ornamental Iron: The Wells Architectural Iron Co.
 Kitchen Equipment: Bernard Gloekler Co.
 Tile: Wm. H. Jackson Co.
 Evan's "Crescent" Expansion Bolts.
 Stanley Butts used.
 Otis Elevators.
 Switchboard Grilles: Wm. O. Chapman Co., Inc.

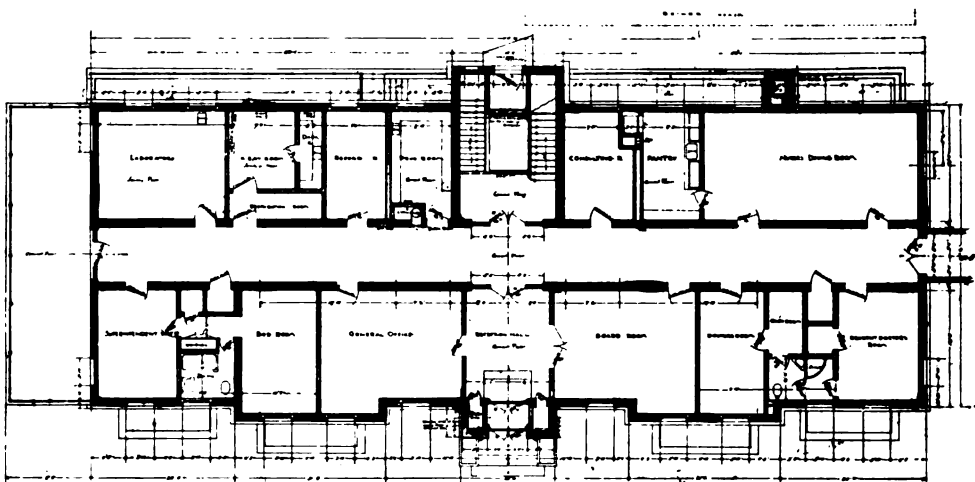
Geo. B. Post & Sons, Architects.

Steel Furniture: Hospital Supply Co.
 Mott Hospital Sanitary Appliances.



MOUNT VERNON HOSPITAL, MOUNT VERNON, N. Y.

Milton See & Son, Architects.



MOUNT VERNON HOSPITAL

Builders: H. H. Vought & Co.
A. B. See Electric Elevator.
Mott Hospital Sanitary Appliances.

Milton See & Son, Architects.



TORONTO GENERAL HOSPITAL, TORONTO, CANADA.

Darling & Pearson, Architects.

Eye Comfort Light System.
 Evans "Crescent" Expansion Bolts.
 Water Sterilizers: Hospital Supply Co.
 Mott Hospital Sanitary Appliances.

EQUIPMENT OF OPERATING ROOMS

By DR. LEON L. WATTERS

THE unprecedented increase in hospital construction in America brings this class of buildings and the problems connected therewith to the attention of a large proportion of architects. In fact, the demand for expert services in this particular line of building has given rise to a class of architects who devote their exclusive attention to this work. These experts have had both the facilities and the time for mastering the essentials of such portions of hospital construction as are unique; the general architect, however, when attacking his first hospital construction, finds himself confronted with problems which are unfamiliar to him. This particularly applies to the equipment of the sterilizing rooms. It is to such architects that the information in this article is directed with the hope that its perusal may make clear the essential requirements thereof.

The practice of aseptic surgery and the modern apparatus and appliances for attaining the necessary cleanliness thereof are of such recent development that standard literature bearing on the subject is extremely limited. It will be recalled that even as late as our Civil War, surgeons hesitated to perform abdominal operations owing to the almost certain fatal consequences which would result therefrom owing to sepsis; and such operations as amputations and the removal of growths, which were attempted, were invariably attended by the formation of pus. In fact, it was an accepted and prevailing notion that the formation of pus or "matter" as it was termed, was a healthy and normal attribute of the healing of wounds.

The discoveries of Pasteur conclusively proved that the normal human tissues were free from the germs of bacteria of decay and that if the entrance of these microscopic organisms into the wound was prevented, then the wound would heal without the formation of pus. Lord Lister, taking account of Pasteur's discovery, adopted the system of maintaining a continuous spray of an antiseptic liquid over the wound and over the hands and instruments of the surgeon as he operated, with the idea of killing any infection which might enter the wound during the course of the operation. This was the period of "Antiseptic Surgery," and though the results obtained were enormously superior to anything previously possible, yet the poisonous effect of the free use of the antiseptic solutions told strong-

ly on the patient. More complete investigation and better reasoning led to the conclusion that if the tissues were normally free from bacteria of decay, then it was more logical to prevent the wound becoming contaminated by making sure that the skin of the patient, the hands of the surgeon, his instruments, his dressings and everything which came in contact with the wound be rendered sterile or free from germs. This movement inaugurated the era of "Aseptic Surgery."

For the purpose of providing the facilities required for aseptic surgery as practiced today, it is necessary that suitable apparatus be provided for the following purposes:

1. An apparatus for sterilizing the dressings, bandages, gauze and cotton. Such an apparatus is known as a "Dressing Sterilizer."
2. An apparatus for the purpose of sterilizing the metal instruments to be employed; such an apparatus is known as an "Instrument Sterilizer."
3. An apparatus for the sterilization of the water used for flushing the wound and for making various solutions, which apparatus is known as a "Water Sterilizer."
4. An apparatus for the purpose of sterilizing such large articles as pitchers, basins, trays, etc. Such an apparatus is known as a "Utensil Sterilizer."
5. An apparatus for emptying and washing bedpans and sterilizing the bedpans and contents. Such an apparatus is known as "Bedpan Sterilizer and Washer."
6. An apparatus for sterilizing dishes from infected patients. This apparatus is known as a "Dish Sterilizer" and is mostly used in contagious hospitals.

There are three agencies for securing sterilization, namely: chemicals, dry heat and moist heat. Chemical sterilization is now used only for the preparation of the skin of the patient, the hands of the surgeon and nurses and some minor uses. All germs or spores can be killed by boiling in water, and this method of boiling in water is universally used for the sterilization of instruments and other articles made of metal or of metal and porcelain. Unfortunately, the scheme of boiling in water is not applicable to dressings, cotton, bandages and other articles made of cloth or fabric and hence resort must be had to other methods for this purpose. Originally these articles were sterilized by dry hot air, but the results were neither certain nor satisfactory.



PORTION OF THE INSTRUMENT AND DRESSING ROOM AT THE FLOWER HOSPITAL, N. Y. NOTE INSTRUMENT CABINET WITH SLANTING TOP.

Equipped by The Hospital Supply Co.

The fact that steam exerted a decided bactericidal effect led to the use of this agent for sterilization, and it is by means of steam that such sterilization is carried on today. The sterilization of water is accomplished by the application of heat such as will produce a temperature above the boiling point.

The Sterilizing Room in a Hospital.

The increase in surgical work in hospitals has made necessary the employment of a separate room for the purpose of preparing the sterilized articles required. In hospitals

up to 100 beds, it is desirable that the sterilizing room should adjoin the operating room or be placed between them, if there are two operating rooms, with doors leading into each. It is a common mistake to make this room so small that the work is carried on with difficulty and the room is unbearably heated up. It is not necessary that radiators should be employed in this room as these interfere with the placing of the sterilizing apparatus and it is desirable that an unincumbered wall space be provided on at least one



STERILIZING ROOM AT THE FLOWER HOSPITAL.

"Climax" Dressing Sterilizers: The Hospital Supply Co.



OPERATING ROOM AT THE MONTEFIORE HOME, NEW YORK.
NOTE INSTRUMENT STERILIZER.

Equipped by The Hospital Supply Co.
Tile: Wm. H. Jackson Co.

side. Risers for steam supply and return and water supply and return of at least $\frac{1}{2}$ inch should be provided and also a 2-inch vent pipe which should lead to the outer air to be trapped in the basement. Risers should preferably emerge from the wall. Care should be taken that doors should not interfere with the proper use of the apparatus. A hospital requires the following apparatus:

1. A Dressing Sterilizer;
2. A Water Sterilizer;
3. An Instrument Sterilizer;

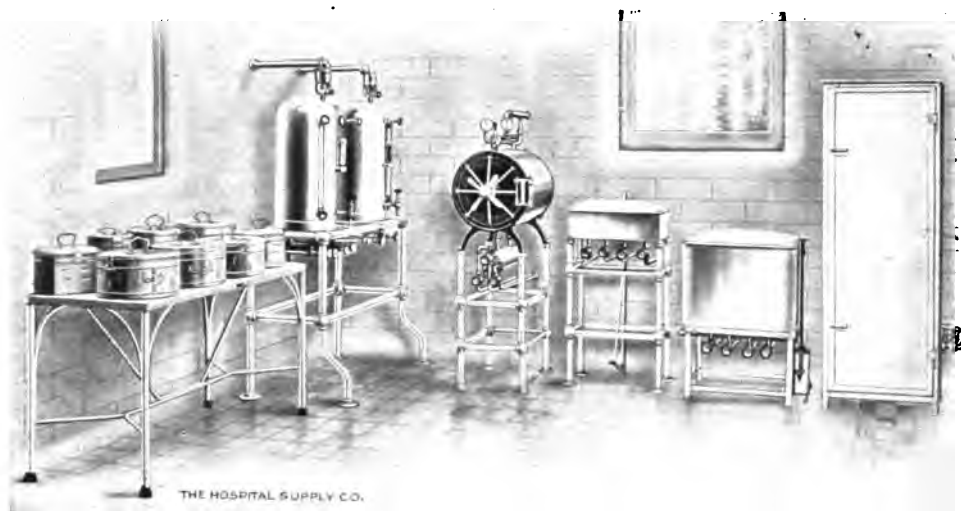
4. A Utensil Sterilizer;
5. A Blanket Warmer.

Some institutions find it desirable to have an instrument sterilizer located in each operating room so that the instruments will not have to be carried outside for sterilization. Some also find it desirable to have a utensil and instrument sterilizer in every nurse's utility room. A blanket warmer placed either in the sterilizing room or some other place convenient on each floor is becoming more and more desirable as a means of supplying hot



STERILIZING ROOM AT THE MONTEFIORE HOME. NOTE STERILIZERS
MOUNTED ON WALL BRACKETS.

Equipped by The Hospital Supply Co.



TYPICAL EQUIPMENT OF A STERILIZING ROOM.

blankets and warming bedpans and urinals and drying out linen.

For a hospital up to 50 beds with a normal proportion of surgical cases the following equipment will suffice:

- (1) dressing sterilizer, 16x30 or 16x36;
- (1) set of water sterilizers, each tank 15-gallon capacity;
- (1) instrument sterilizer, 22x12x9;
- (1) utensil sterilizer, 20x24x20;
- (1) blanket warmer, 24x24x72.

For hospitals of larger capacity or for those performing a large proportion of surgical work, the above capacity may be altered in proportion. The architect should avail himself of the services and advice of the sterilizer manufacturer early in the progress of his planning as such a manufacturer, through long experience, is able to supply reliable information as to capacities, piping, etc. It is always desirable to submit to the manufacturer blue-prints of the sterilizing and operating rooms and to secure the roughing-in measurements for the piping required and a check on the capacities of the apparatus.

Dressing Sterilizers.

The modern dressing sterilizer depends for its results on the employment of high pressure steam. The steam from the basement boilers is never directly employed, but instead, steam is generated in the sterilizer itself by the use of boiler steam or gas heat or even petroleum or acetylene. During the last few years there has been a growing tendency to employ electrically heated sterilizers and thus do away with the necessity for a high-pressure boiler and the necessary piping required. At the new buildings of the Washington University, St. Louis, Mo., de-

signed by Theo. Link & Son, the Hospital Supply Company has installed the largest electrically-heated sterilizer equipment in the world. By connecting the sterilizing apparatus with the hot water supply the cost of electrically-heated sterilizers, under favorable conditions, compares advantageously with that of other methods of heating.

In order to secure certain sterilization it is now almost universally admitted that the air must be removed from the sterilizing chamber before steam enters. The result has been the perfection of the combined pressure and vacuum sterilizer of today. So nearly perfect has the modern sterilizer become that there is no longer any occasion to accept any sterilizer which is not equipped for drawing a vacuum. By the use of the vacuum device, not alone is the time for sterilization much reduced and the certainty of sterilization guaranteed, but the vacuum apparatus provides the means for quickly and thoroughly drying the dressings, and moist dressings have until now been the chief cause for complaint. In some sterilizers a rapid drying device is provided by means of which a continuous current of hot sterile air is drawn through the dressings after sterilization in such a manner that perfectly dry dressings result. In this type of sterilizer also, improvements have been made until the modern sterilizer has become exceedingly simple in operation with very little likelihood of repairs becoming necessary. The control is entirely from the front by means of a single lever, and the opening and closing of the door and locking of the fingers has been made practically automatic.

There is a growing tendency to use steril-

ilizers of moderate diameters in order to make use of the drum system of sterilization. Some hospitals prefer to use two or more units of 16x24 or 16x30 dimensions as in the New Flower Hospital, while others, like the New York Hospital, Mt. Sinai Hospital, Michael Reese Hospital and the new Bellevue Hospital, prefer to use larger units of the 16x60 size. Separate steam generators are employed in some types which reduce the time of sterilization and also make the cleaning of the sterilizer a simple matter. If provision for a steam exhaust or vent pipe is made, the sterilizer can be equipped with this device for removing excess steam and thus prevent condensation on the walls and ceiling.

Water Sterilizers.

It is a common mistake to provide water sterilizers of too small capacity, as sterile water is employed for other than operative work. Seamless shells are used for both the hot and cold tanks and means are provided for preventing the gathering of sediment or incrustations.

Instrument and Utensil Sterilizing.

Instrument sterilizers are now supplied with pedal devices for raising the covers and trays simultaneously. Utensil sterilizers have either oil or hydraulic pumps for accomplishing the same results. Wherever the operating room is far removed from the sterilizing room, it is desirable to install extra instrument sterilizers therein. Utensil sterilizers of small size are coming into more general employment for the purpose of sterilizing dishes and are used for this purpose both in the Rocke-

feller Hospital and in the Washington University Hospital, St. Louis. In contagious hospitals apparatus is provided whereby the infected dishes may be placed in the sterilizer in one room and the sterilized dishes removed through a window into the "clean" room.

Bedpan Sterilizers and Washers.

There is a growing and commendable movement in the direction of replacing open clinic sinks with automatic, closed apparatus for the purpose of emptying and washing bedpans and sterilizing the bedpans and contents, if desired. Up to now, one of the most disagreeable duties that a nurse has been called upon to perform has been to empty bedpans, an operation which was always attended with splashing and the spread of disagreeable odors. There is now made a bedpan sterilizer and washer which performs the emptying and washing of bedpans in a closed vessel entirely automatically, thus becoming a most desirable feature of hospital equipment. It also affords the means of sterilizing the bedpans and contents from typhoid and other infected patients.

Writing Specifications.

Specifications for sterilizing apparatus should be embodied in detail, in order to guarantee the delivery of the apparatus desired; and, on account of the diverse forms of sterilizing apparatus, it is desirable to specify the manufacturer by name. The caution should be taken to include connecting up of the sterilizing apparatus by the plumbing contractor, as a frequent cause of trouble results from failure to take this precaution.



KITCHEN IN THE OHIO VALLEY GENERAL HOSPITAL.

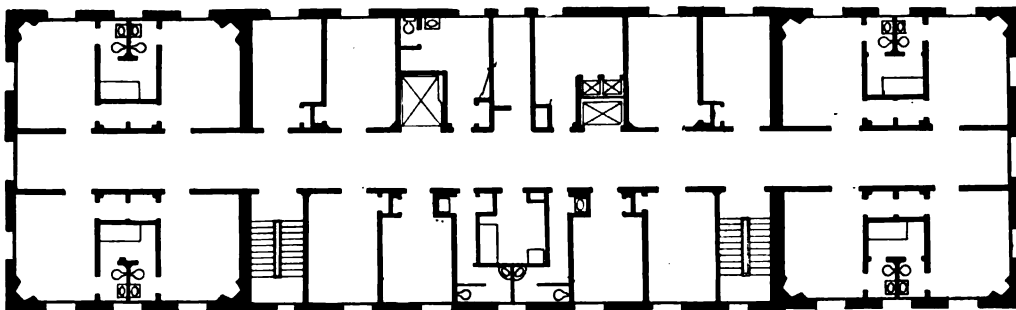
Kitchen Equipment: Bernard Gloeckler Co.



Tile: Wm. H. Jackson Co.



HALL IN THE FLOWER HOSPITAL AND A ROOM IN THE FRENCH HOSPITAL.



PRIVATE PAVILION OF THE FLOWER HOSPITAL, NEW YORK.

Fireproof Arches: Arthur Greenfield, Inc.
 Star Expansion Bolts.
 Equipped by The Hospital Supply Co.
 Mott Hospital Sanitary Appliances.
 Stanley Butts used.

Delano & Aldrich, Architects.



NEW WING OF THE HOSPITAL FOR DEFORMITIES AND JOINT DISEASES.

Electrical Contractor: Dennis C. Brussel.
Stanley Butts used.

Otis Elevators.

Equipment: Hospital Supply Co.

George Provot, Architect.

Builders: Jacob A. Zimmermann & Son, Inc.



WING OF THE FRENCH HOSPITAL, NEW YORK.

Electric Dumbwaiters: James H. Roberts Elevator Co.
Stanley Butts used.

Heidelberg & Levy, Architects.



OHIO VALLEY GENERAL HOSPITAL, WHEELING, W. VA.
 Barrett Specification Roof.
 Stanley Butts used.
 Hospital Signals: The Holtzer-Cabot Elec. Co.
 Edward F. Stevens, Architect.



CASA DE SALUD LA BENEFICA, HAVANA, CUBA.
 Equipped by the Hospital Supply Co.

SANITARY FIXTURES FOR HOSPITALS

By E. L. PENFRASE

THE manufacturer having established a special department for taking care of hospital requirements is in a position to recommend the class of material that will best serve the purpose and the architect who will specify as a standard the sanitary appliances that are guaranteed against defect in manufacture provides for contingencies that arise after the contractor has received final payment.



Figure 1.

Safety first rules generally in the selection of sterilizing and heating apparatus to which steam is applied, even as in the selection of elevators and other apparatus in daily use. Anticipating wear and tear in operation, the question of promptly obtaining future repairs is always considered, for obvious reasons. Quality is primarily the important factor and this should apply in the selection of the plumbing fixtures rather than price considerations.

It is essential in order to safeguard against infection and to maintain hygienic conditions in every department of a modern hospital that sanitary appliances with specially designed simple features be provided for the comfort of the patient and also to facilitate the handling of patients from the receiving ward to the convalescent stage. The designs of such fixtures originated from suggestions obtained for the most part from hospital superintendents and doctors in all classes of hospitals.

To show the varied types of fixtures which have been developed to meet hospital needs illustrations tell the story

most plainly. The ambulance brings an accident case to the receiving ward; it is impossible for the patient to stand under a shower or be submerged in a bath tub. For such cases there is a shallow bath provided with a rubber mattress, the water being delivered through a spray at a pre-



Figure 2.

determined temperature, to prepare a patient prior to admission to the proper ward (figure 1).

Eminent surgeons agree that in performing operations the forearm as well as the hands should be sterile. The knee valve, therefore, is accepted as proper for the regulation of temperature and flow of water, although the elbow device or pedal at the floor may be obtained.

Fixtures in and adjacent to the operat-

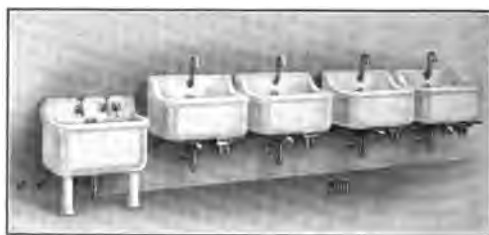


Figure 3.

ing ward are usually suspended from the wall, as shown in figures 2 and 3. In fact, the trend in hospital sanitation is toward wall suspended water closets, lavatories, sinks and slop sinks, leaving the floors free and clear of all fittings. These fixtures are manufactured of vitreous ware

and are of a size which permits installation as shown. Large, heavy, vitreous pieces are provided with special supporting legs.

In every hospital ward the problem of

justed to changed conditions brought about by variation in the pressures of hot or cold supply.

Consensus of opinion has determined that the maximum temperature of hot wa-



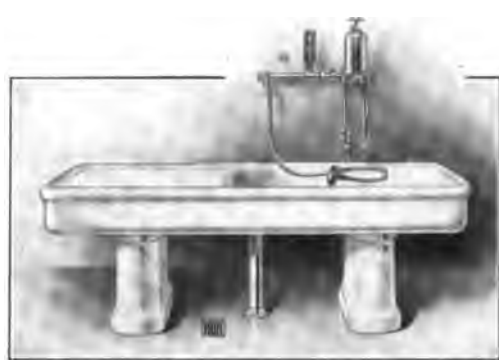
Figure 4.



Figure 5.

emptying the obnoxious bedpan, with its attending odor, must be contended with. Also the noise caused by the ordinary cleansing jet or spray under pressure coming in contact with the pan, is an objection. A modern appliance doing away with these objections is found in the revolving fixture operated from the bedpan cover, as shown in figures 4 and 5, which empties the pan as the cover is closed and permits perfect cleansing within the receptacle while closed.

For bathing children a slab bath with a small sink at one end for irrigation purposes has replaced the bath heretofore



DOUBLE SLAB BATH FOR BATHING CHILDREN.

Throughout a hospital should not exceed 130 degrees Fahrenheit. Considering the number of accidents caused by scalding, this question is one of vital importance to the hospital superintendent, who generally assumes that the architect has provided a safety factor at the source of hot water supply. Automatic hot water heaters are frequently overtaxed and in order to furnish an adequate supply of water during the rush hours the thermostat is often set at a dangerously high de-



WALL SUPPORTED CLOSET.

furnished, which was of sufficient depth to submerge the infant.

A dependable device is available for the control of temperature and volume of water. If the cold water supply leading to the bath is inadvertently cut off the valve will close instantly, thus affording an absolute safeguard against scalding. The valve shown in figure 6 is balanced and automatically becomes ad-



Figure 6.



HYDROTHERAPEUTIC EQUIPMENT.

gree. Later, when a lesser quantity is in use, the temperature rises above the scalding point and an accident occurs.

Meanwhile the entire plumbing system is subjected to irreparable damage caused by expansion and contraction of piping concealed within the walls and elsewhere, due to the rise and fall of the temperature of the hot water.

The discovery of the advantage of di-

rect treatment by light, air and water is responsible for the installation of hydrotherapeutic equipment in all hospitals of recent construction. Patients demand facilities for up-to-date treatment and such equipment proves profitable as a revenue producer to the hospital on account of the numerous out-patients who may be sent for treatment by physicians, a procedure which apparently is preferable to visiting the average bath establishment which may not have a physician in attendance.

The prescription written by the physicians for treatment by hydrotherapy may only be carefully fulfilled by means of the proper scientific apparatus installed under a separate water system with equal pressures of the hot and cold water supply. It is advisable in order to insure successful operation to have the manufacturer furnish the plan for installation.

The plumbing fixtures in every ward of a modern hospital require special features. Valuable suggestions may therefore be obtained by the architect from manufacturers' representatives who specialize in this line and are constantly meeting the problems that arise in connection with various hospital equipments.

TRINITY CHURCH-YARD CROSS

THIS cross, which is shown in the illustration on page 333, is a well studied piece of Gothic design, the work of Thomas Nash. The early sketches consisted of drawings at a scale of one inch to the foot. From these a one-inch scale plaster model was made and the general form and appearance settled upon. The next step consisted of full sized details, and from these a full sized model was made. The final study of the design was made on this model and the mouldings and ornament were changed to give the proper shadow lines. Irving and Casson made the models for the architect and the detail figure presented is from their full scale model.

The shaft sets forth the genealogy of Jesus Christ as given by St. Luke and the cross at the top bears on one side the crucifixion and on the other the mother and child.





Oakland City Hall

Oakland, Cal.

Architects:

Palmer, Hornbostel & Jones

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West of Chicago

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Direct Lift Freight Elevator

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For, of more everyday value to Architects is the guide which is given in its facilities for service, among which are

Otis Elevators

The architectural excellence of this monument to Oakland's civic pride would be of less importance were it not for the example it sets in the perfection of its equipment details. That Otis Elevators were chosen to supply the most important function of the building's service, is strictly in keeping with the high standard of its other appointments. If but to safeguard the Architects' interests so far as the building's service is concerned, Otis Elevators should always be specified.

Otis Elevator Company

Eleventh Avenue and Twenty-sixth Street, New York

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BOOK REVIEWS

MODERN CLASSIC ARCHITECTURE IN GREAT BRITAIN AND IRELAND DURING THE XVIIIITH AND XIXTH CENTURIES, by A. E. Richardson, F. R. I. B. A. London, B. T. Batsford. New York, Chas. Scribner's Sons. Cloth 12 x 15 inches, 124 pages and 60 plates. Price, \$33.50 net.

This work, which the author dedicates to His Royal Highness, Prince of Wales and Duke of Cornwall, is an extensively illustrated treatise which covers English Monumental Architecture from the periods of Inigo Jones and Sir Christopher Wren to the present time. The sixty plates are for the most part reproduced by the gelatine process and were made from most excellent photographs. The balance of the plates are made by the half-tone process from photographs equally good of the subjects. It is the high quality of the illustrative matter that will make the book of great value to the architect who needs such material to familiarize himself with the architectural details of the English Designer during the period covered. The illustrations in the text number 135 and supplement for the most part the plates.

As to the subjects covered, we may quote the author.

"Although the subject embraces the important buildings designed by Inigo Jones and Sir Christopher Wren, the illustrations of the works of these masters are not given in this treatise, mainly because they have been adequately described by other authors, and to cover the same ground once more would be superfluous. In like manner, only the important buildings of the first half of the eighteenth century, such as come within the strict meaning of the term monumental, are included.

"Another reason why emphasis is given to that development of Neo-Classic architecture which followed the period of Sir Christopher Wren is because it embodies the earliest date at which both architects and amateurs sought to interpret the true Classic spirit. Under the aegis of Lord Burlington they tried to return to the refinement and purity of composition, inherent in the monumental style of Rome. The outcome of this desire to transplant to

England some part of the warmth of character of antique culture resulted in a passion for research, first in Italy and later in Greece. The Society of Dilettanti furthered the independent action of noblemen and their agents by organizing archaeological study and extending the sphere of operations to the Greek Archipelago and Asia Minor. After a time the Royal Academy came into existence with its distinctive branches of architecture, sculpture and painting. The Roman Palladian phase, initiated in Burlington's time, was succeeded by a Graeco-Roman development mainly encouraged by the example of the Athenian researches. Hence through the remaining years of the eighteenth century until the close of the first quarter of the nineteenth the search for the sublime and lasting qualities of architecture continued. The vastness of the subject precludes my dealing with the numerous side issues which took place at intervals, but which had no great bearing on the trend of the main movement. In the Neo-Grec and Italian Culmination, which occurred simultaneously with the rise of the Romantic school, there is to be seen the genesis of the modern cosmopolitan movement, the breaking down of the barriers of insular prejudice in favor of a broader understanding of architecture.

"So strongly planted are the giant roots of the Classic growth that they withstood the successive shocks and storms occasioned by the uncertain tendencies of the second half of the last century, and today the tree promises a renewed blossoming. The need for the steadying influence of an academic style is more than apparent. There can be no question of revivals or revivifications; such terms are erroneous; but in the continuance of the spirit of the Classic tradition lies the greatest promise for the art of the future. I have endeavored to avoid all controversial questions in my account of the monumental manner; and with this idea in mind have selected the illustrations, which are the finest of their several types. In dealing with the lives of the architects who form the various groups in the history of the movement I have had recourse to a concise biographical arrangement which not only permits the career of any one architect to be understood in relation to the complete development, but also allows the inclusion of a list of works actually carried into being.

(Continued on page 20.)

THE UNIT CLOSET FLUSH VALVE

The Unit Lever Handle Flush Valve. Guaranteed to Work from Five Pounds Up. Tank Pressure.

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Sanitary Specialties. Brass Founders and Finishers.

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A Barrett Specification Roof was put on this building because—

The architect knew all about the different types of roofing and further knew that the National Biscuit Company were mighty particular people.

They had a big plant and they wanted it covered with a roofing that would give long service at a low cost.

Under such conditions the architect knew there was only one choice, namely: a Barrett Specification Roof, because it gives longer service at a lower unit cost (the cost per square foot per year of service) than any other roofing he could specify.

This building is now covered with a Barrett Specification Roof and it will probably last twenty years or more with *no maintenance cost*. Many such roofs have lasted thirty years.

Every permanent building, whether large or small, should carry a Barrett Specification Roof because that means the most economical roof, and one that will be free from leaks and maintenance.

Ask any first-class architect regarding this proposition and he will verify all of the foregoing statements.

Copy of The Barrett Specification with roofing diagram mailed free on request.

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We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

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Advertisements—When writing Advertisers, please mention Architecture and Building.

"During recent years it seems remarkable that, while the domestic aspect of English architecture has received every consideration for its nurture and expansion, the more important practice of the monumental should have lapsed into desuetude. An academic style is necessary to the architecture of great civic centres; without its benign and uplifting influence the correct tone of the capital can never be attained. All building partakes somewhat of the character which prevails at such culminating points of interest. Where else is it to obtain its impression? What else exists to be mirrored? But when the tone at the centre of the city is decadent there concurs a corresponding depression on the outskirts. It is not my intention to urge the literal transference of the monumental quality to problems of domestic architecture; that would be in direct contravention of the academic laws. Such methods were in vogue in the days of the Georges, and soon wrought their own destruction. Yet, notwithstanding, the grand style of domestic architecture has at all periods been influenced by the ennobling character of the monumental and the academic, and owes some part of its dignity to the style which pertains at the centre of taste.

"The ultimate success of a great architectural development depends, not on a series of individual and isolated movements, but in combined and sustained effort. There must be a common atmosphere which all can breathe, a prevailing spirit of encouragement and elevation in which all can participate. The resulting unity of effort will be productive of the highest intellectual attainments, compared with which the fairest flowers of the Italian Renaissance will appear trivial."

The subjects of some of the plates have not previously been presented in any way easily available. For instance, the series of magnificent views, exterior and interior of the Bank of England, London, are exceptionally interesting and not elsewhere obtainable. Exteriors of other branches of the bank of England in different English cities are also to be

found. Somerset House, London, is extensively illustrated, as well as the British Museum, the FitzWilliam Museum and St. George's Hall at Liverpool.

There are many examples of the work of Sir Robert Smirke, Sir Jas. Pennethorne, Sir Wm. Chambers, Robert Adam, James Gandon, Thomas Cooley, George Dance, James Stewart, Robert Taylor, Prof. C. R. Cockerell, John Nash, H. E. Goodridge, Thomas Hamilton, H. L. Elmes, George Basevi, Sir Chas. Barry, Sir Wm. Tite, John Gibson and many others.

The subject matter of the book is included in the chapters upon the Roman Palladian Phase, 1730 to 1780; the Graeco-Roman Phase, 1780 to 1820; the Greek Phase, 1820 to 1840, and the Culmination in the Neo-Grec and Italian Phase. There is also a full bibliography and index.

VITRUVIUS. The Ten Books on Architecture. Translated by Morris Hicky Morgan, Ph.D., LL.D. Cloth, 7x10½ inches, 330 pages, 60 illustrations. Cambridge: The Harvard University Press. Price \$3.50 net.

While this translation of Vitruvius appears as the work of Dr. Morgan, it was completed and published after his death through the efforts of Albert Andrew Howard, Ph.D., under the direction of Herbert Langford Warren, A.M. Professor Morgan translated all but four chapters of the tenth book, and the illustrations selected for the first six books were his choice, so that the book as a whole may be said to represent his ideas and version of the translation of Vitruvius. This volume may be considered as a standard edition, for it furnishes an exact translation, as well as presenting the personality and style of the author. Professor Morgan purposely imitated the peculiarities and crudities of expression of Vitruvius, believing that in this way he could best reproduce the substance of the book, and give the clearest possible picture of the original of its author and of the subject of which he treated.

The illustrations presented by Professor Warren include measured plans and elevations of actual and typical works of Vitruvius and his Greek and Roman monuments, together with reproductions of woodcuts in Fra Giocondo's edition of Vitruvius published in 1511.

To comment upon the influence of Vitruvius in architecture from classic times, during the Renaissance and today, is unnecessary. This translation possesses also a considerable interest to archaeologists and classical scholars on account of the numerous glimpses it gives into the daily life and thought in the days of the early Roman Empire.

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THE PANAMA PACIFIC INTERNATIONAL EXPOSITION.

Despite the war in Europe, the San Francisco 1915 Exposition is going along just the same. It will open as scheduled and it is probably safe to say it will be just as big as originally planned. We hear that even much-suffering Belgium is going to send her exhibit.

The Department of Liberal Arts of the Panama Pacific International Exposition has addressed a letter to each Chapter of the American Institute of Architects, the Architectural Leagues and the Architectural Clubs and Organizations of the United States. This letter invites participation either as individuals or as organizations in the exhibition. We quote the letter in part:

"Under the Official Classification of Exhibits at this Exposition all drawings, models and photographs of completed buildings, artistic architectural details, landscape architecture and architectural engineering will form exhibit groups in the Department of Liberal Arts, which must be displayed in the Palace of Liberal Arts.

"We should be glad to know without delay whether you wish to exhibit. All exhibits must

of necessity be selective in character because of the comparative limitation of space which, by reason of wider participation and the world's more extended productivity, will be more restricted than at previous International Expositions. This will emphasize the advisability of applying immediately for exhibit space.

"While there is no charge for space, exhibitors are required to erect suitable booths and likewise defray the cost of transporting, installing and maintaining their own exhibits. As the exhibit buildings are now completed and ready for occupancy, the allotment of space will commence at an early date.

"Very truly yours,

"Signed, THEODORE HARDEE,
"Chief of Liberal Arts."

ILLINOIS SOCIETY OF ARCHITECTS.

The licensed architects of Illinois, about one thousand in number, are qualified to attend as delegates a convention to be held at the La Salle Hotel, Chicago, on October 7th and 8th. The occasion is to discuss matters of interest to the profession in the State of Illinois.

Mr. Andrew J. Post, of Post & McCord, has been appointed to represent the Merchants' Association upon an advisory committee formed by the New York State Factory Investigating Commission to assist it in the recodification of the State Labor Law.

STUCCO IN BEAUTIFUL FORM

Mr. E. S. Child, Architect, announces a new book of designs for 1914 entitled "STUCCO HOUSES." It shows artistic, original and beautiful plans with vivid European ideals. There is a real demand in America for homes built of this durable and fireproof material, and this book shows perspectives which are different from the plain, cold and forbidding shapes sometimes seen. It shows one-eighth scale drawings of the floor plans, and large, clearly drawn plates for the exteriors. Price, \$5 by express prepaid.

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The diet of patients is a most important item of hospital treatment, and the general kitchen equipment as well as the equipment of the diet kitchen has reached the importance of a science. The allotment of suitable space for the kitchen is an important consideration in the architects' plan, and also the provision for its proper lighting and ventilation. However, in the equipment of the kitchen the architect most often obtains valuable advice from experts who have specialized in kitchen equipments. The firm of L. Barth & Son have as their slogan, "Everything at one Place." They have a score of experts who are fully conversant with hospital needs and can give full and complete service for the equipment of hospital and diet kitchens, as well as the design of special appliances. They will gladly co-operate with any architect and inquiries should be addressed to them at 32 Cooper square, New York City.

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The modern style bulletin board finds its place in the hospital as well as in most other large modern buildings. An in-and-out-board with changeable letters is a great advantage. It is neat in appearance, durable and serviceable, and will always appear well.

Bulletin boards are equally important in a large hospital, and the type of bulletin boards manufactured by the U. S. Changeable Sign Company is exceedingly well adapted to such purposes. In the new Bellevue Hospital buildings, this company has recently installed one in-and-out-board and two bulletin boards. It is to be borne in mind that with U. S. Changeable Bulletins the first outlay is the only outlay. The boards are sold outright, completely equipped. There are no running expenses, as with other systems.

Information concerning these boards may be obtained by addressing the U. S. Changeable Sign Co., 3 West 29th street, New York City.

A LONG ROOF.

At Butler, Pa., the Standard Steel Car Works have a great factory. It extends for over a mile, a continuous line of buildings interconnected. The roof area of the buildings is something like 750,000 square feet. A photograph of the plant takes in about half the town in the foreground. This permanent roof, which in all probabilities will be good for twenty or thirty years without a repair, is a Barrett Specification Roof.

CIVIL SERVICE EXAMINATION.

On October 7th and 8th there will be examinations for Clerk-Draftsman to fill vacancies in this position at a salary of \$1,200 per annum in the offices of the Surveyors General, one at Boise, Idaho; two at Denver, Colo.; two at Helena, Mont.; two at Phoenix, Ariz.; two at Salt Lake City, Utah; three at Santa Fe, N. Mex.

Full particulars in regard to these examinations may be obtained by applying for form 1312, stating the title of the examination, to the United States Civil Service Commission, Washington, D. C.

A HOSPITAL WINDOW.

In hospitals the window problem is an important one, and as the window is the most accessible means of ventilation, utilized constantly in hot weather whether there are artificial systems of ventilation or not, a window that is adapted to meet hospital needs is an interesting and a desirable part of the equipment in any well-designed hospital building.

The Leonard "ideal" window was built to meet special hospital requirements. In its design the knowledge gained by long experience of the manufacturers was combined with the requirements of the physician. The window is designed to be tilted so that both sashes may be swung open at the top, affording indirect, draftless ventilation. The air is projected upward into the room and diffused from the ceiling downward. Both sashes may be opened at the same time, or either one may be opened separately. It is possible to tip the top sash inward only, and leave the window locked at the meeting rail. An advantage of this type of window is in the fact that it may be opened during a rain storm without danger of rain driving in. Further, it is possible for screens, grills, or iron bars to be placed outside of the window without interfering in any way with its operation, or with its cleaning, which may be done from the floor inside.

In construction, the styles and bars are accurately fitted, and manipulation of the working parts is easy and positive in consequence. The frames are weather-stripped at the sill, head and sides, so that they are dust-proof and draft-proof when closed.

The "ideal" window may be obtained in hollow galvanized iron or hollow copper construction, and in these forms bears the Underwriters' label which assures its use in fire-

(Continued on page 24.)



ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

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The object of these essays—or attempts as I would call them—is nothing more nor less than to point out the causes of certain conditions that exist in the business of architects and builders, and to show a way to improve them.

As I have said before, those who are satisfied with business conditions will not be interested. It is the satisfied ones, the ones who have their front feet safely anchored in the trough, who want things to stay as they are and are willing to fight if need be to keep them that way. But times come when even the satisfied ones cease to be so, and there is no one left to exert himself “to hold the organization together.”

Then is the time for reorganization, or as one might say for things to be born again. Everything in this world that has life must go through this process from time to time. It is either that or death. If you can't or won't be born again you must disappear from this scene of activity.

Things that Providence intends to preserve have a happy way of being born again; happy at least for those that come up from the depths during the process, though sad perhaps for those who are dashed down from the heights. We see it all around us. Today I read in a newspaper an account of the great American institution of baseball which, it appears, had its reorganization in the '70s. If the editor is to be believed, baseball is ripe for another reorganization.

And so it goes. Perhaps you laugh at the man who says that an institution is ripe for reorganization. It all depends on the point of view. The ticket speculator who has made a killing at the expense of a lot of crazy baseball fans is satisfied and ready for more. But the fans have a way of kicking and when they become sufficiently aroused something drops.

The question of whether the architect is destined to be swallowed by the builder and to become his clerk, or whether the builder is to be swallowed by the architect and to become the architect's superintendent is not now before the house. There is no law requiring either

one or the other of these two alternatives. That would be an application of the Newtonian theory of life, as President Wilson would say. The Darwinian theory, the theory of the survival of the fittest, is what we are living under, and Institutes and mutual admiration societies can legislate until they are black in the face and they will be as impotent as the congress of mice which passed the law that a bell should be put on the cat.

The architect is the man who has the job—when he has it. If he is wise he will allow no builder—no famous builder—to come anywhere in sight; he will be the builder.

Sometimes the builder gets the job first. In such a case I have known the very same architect to be the first man to extend to the builder the glad hand of fellowship.

And the owner—what about the owner? He corresponds to the baseball fans who get stung at the World's Series.

Two stories, one about a builder and another about an architect, illustrate certain conditions that used to exist in the building business. First for the builder's story, and I wish to have it understood that it is literally and absolutely true.

One of the most successful contractors in New York City for a certain important part of buildings, then in the heyday of his powers and of his successes, was talking with a younger man who was coming along about the conditions in New York. The contractor told of his success in getting certain municipal contracts and how he worked it by getting in touch with the men "down the line." This showed how he "ramified" politically. He went on to say that a certain architect was heavily in debt to him. The architect was a bully fellow but playing in hard luck and the contractor had advanced him at the time over ten thousand dollars. He said that he expected to see this architect secure an important commission and it went without saying that if the architect got it he would pay back the money that the contractor had advanced him.

Well, the architect did get the job and the contractor landed the contract, putting in two bids, one based on a "competitive" material and the other based on "proper" material. The "competitive" material bid was not quite the lowest, while the "proper" material bid was a half million dollars more and the highest in the list. With the architect's help the contractor was able to get a preference over the bidder who was under him and so secured the contract.

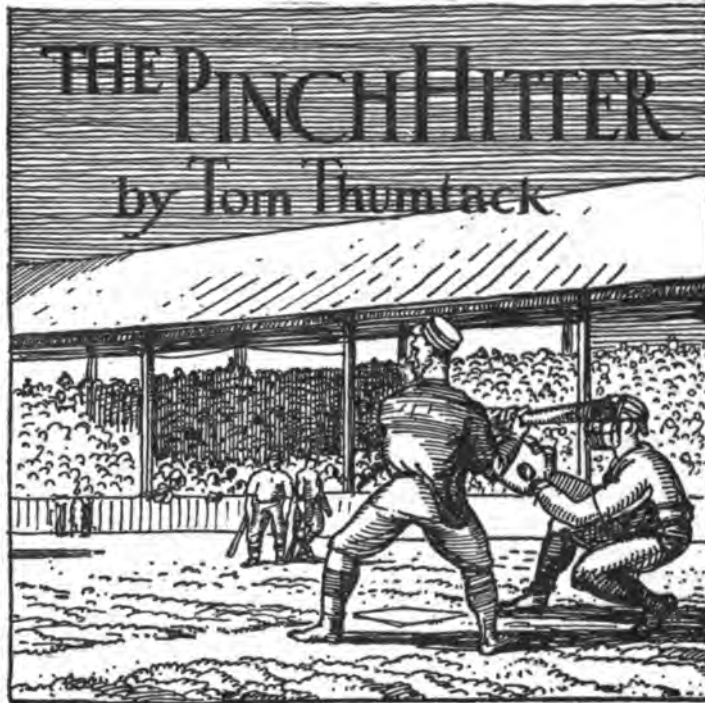
Afterwards, with the same powerful help, the contract was changed so as to include the "proper" material at a proper increase in price. The building was built and most of the material was supplied by the man who had been the low bidder but had not had the advantage of having loaned the architect ten thousand dollars when he needed it.

That is a story of another day. The contractor is no longer in the game.

The story of the architect will have to go over till next month.
Theodore Starrett.

(To be continued.)

ARCHITECT-TONICS



Your scribe has three brothers all nearly of an age and all marked by a strong resemblance to the eccentric features of their sire. Heredity has been strong with us for generations and such features as advancing culture and refinement are supposed to modify, with us have not been so affected. Take our ears, for example. A family portrait five generations old shows Round-Head Thumtack painted in profile and displaying on his near side a very sail-like sound-collector. That side-face portrait gave the rest of him away. He didn't want his facial ship rigged wing-and-wing as would have been the case were he revealed bow-on. His sire's ears were hid triumphantly under a judicial periwig, but Roundhead politics showed up the son. Even the family coat-of-arms displays an elephant head with great ears outstanding above the Latin of a boastful motto. My best pictures are taken sidewise and so are all my brothers. We have long and deep-lined faces and widower's peaks between bald temples. The only part that saves us is below the necktie and I will say in self-protection that we stand near the head of almost all processions. Our figures are so much alike that the same suit fits every brother.

Our features are quite similar but so differently distributed that there is no confusion when we are all together. However, when seen alone each of the brotherhood is often mistaken for another.

I have explained that we are individually not good for sore eyes and collectively the terror of opticians. I remember a compliment bestowed on a group-picture of us all, embellished by our cocker spaniel. After a careful scrutiny the honest critic said: "Well boys, you've got a handsome dog!" Although few mistakes arose when we were all together, yet our family resemblance often resulted in great confusion when casual acquaintances met one of us alone. I have even been mistaken for myself. A girl named Precious whom I taught to swim learned that my older brother was to come to the Lake the following summer, but I came unexpectedly in place of him. Precious thought it a good chance to be taught to swim by the new-comer and was quite horrified to find, after a week of pleasant lessons, that it was the second time that the same teacher had given her instruction. I learned in pursuing the inquiry suggested by this experience that five other men had taught Precious how to swim, preceeding summers. This Precious incident was my suggestion for writing a little play in which the Thumtacks presented themselves in a farce of mixed identities which was really very funny. I've often acted a missing brother's part as well as my own in an impromptu performance.

The exact similarity of our builds and the likeness of our rough-hewn features worked to great advantage on our ball team. When our side was at bat the Thumtack slugger was slipped in at every critical occasion for one of his lighter hitting brothers and broke up many a game. We called him our pinch-hitter and we didn't have to change our playing combination in the field to use him either.

The girls used to play the trick of pretending to mistake one of us for another with whom she was having an imaginary flirtation and of showing a willingness to start up his imaginary romance, at the imaginary point where it had been temporarily suspended. The vim with which the substitute would always take the part and the speed with which he would always raise the limit, tended to make the game even more exciting than the girl anticipated.

Finally each chose a life work and separated to distant states and were together only during brief vacations. The oldest became a very able surgeon and settled upstate in New York. One went to Ohio in the oil fields and the banker stayed with me in New York City and established his family in the suburbs. It was during visits to each other after this separation that ludicrous mistakes occurred in mixing up the brothers.

Human minds are very prone to jump at their conclusions. A dog investigates more fully before he makes decisions, "his master's voice," to the contrary notwithstanding. When one Thumtack was seen in another Thumtack's domain or domicile, especially in his personal domain such as his overcoat or his motor car, the casual

friend of the native Thumtack never stopped to observe closely the new face in the accustomed coat or car and made the snap conclusion from the more obvious characteristics that he was looking at his own acquaintance. I often noticed this lack of careful observation, and after studying it, soon became convinced that no one of the doctor's ordinary patients could tell the difference between a foreign Thumtack in the doctor's habitat and the real doctor. The doctor was once caught in a bad motor smashup, and I went up to see him. While confined to his bed many of his grateful patients called to make inquiry about him. I remember opening the door for one of them, a dear old nervous lady who greeted me with bright surprise and these words: "Oh, Doctor, how glad I am to see you up again!"

"I'm not the doctor, madam. I'm his brother."

Much confusion and embarrassment on the old lady's part and then—"Oh, now I see you're not the doctor, but do you know you look exactly as I had pictured the doctor would look after that dreadful accident."

I often made the rounds with the doctor in his car and when he stepped out, rather than cause embarrassment, I have often diagnosed an ailment until the doctor should arrive to straighten matters out. If you were waiting for the doctor in his car how would you answer a charming lady when she asked you how you thought her eyes were looking? Would you cover a pretty maiden with confusion before she could cover her retreat by rudely answering her that if she really wanted to cure her house-maid's knee she'd better ask most any one except an architect? When the town-rounder asked advice would you refer him to Vignola? No indeed! You would punch the self-starter just as I would and take a turn around the block. This would give the doctor a reputation for abruptness, but would save his brother's spotless innocence.

You will remember that in those years I was head draftsman for Tracing & Bosage. The doctor was visiting surgeon and a member of the board of directors of a big sanitarium in a nearby town which was going to erect a new group of buildings. Owing to the demands on his time of his heavy local duties and his rather abrupt personality, the doctor was on only bowing acquaintance with the other directors, but since each director might choose a competitor I got the doctor to nominate Tracing & Bosage. Tyrannical old Professor Ward had been chosen professional advisor and he wrote a lean, direct, and clean-cut programme. I had lived, talked and studied hospitals with the doctor ever since his interne days and knew that institution like my alphabet. The doctor had written Ward all his special information around which the programme had been constructed. I think we solved that problem.

We presented our drawings knowingly, but having as always under-estimated the time necessary to complete them, they were in their wrapper only a few minutes before the last train left that would get them to their destination in time for the judgment. Since the

time limit had been too nearly reached for expressage and since I was the only one who knew the railroad changes and the town where they were to be delivered, it was considered wise for me to personally conduct the drawings. My name, of course, had not appeared at all, and if I had been practicing independently, I doubt if the doctor's sense of fitness would have permitted him to nominate me. On account of this eleventh hour decision, I telegraphed the doctor and was bundled into the car at the Grand Central in my old office clothes, and set out on what proved to be a journey of adventure.

Arrived at Weston, imagine my surprise to find that the doctor, our only friend at court, had gone out of town on an operative case and had contented himself with sending his motor car to meet me to deliver the drawings and a note of explanation to the committee. Jim, the chauffeur, wanted to take the package but I was afraid he couldn't manage it and drive, so I determined to go along with him and deliver it myself. Not wanting to go to the sanitarium in the old office coat in which I had made my New York get-away, I drove first to the doctor's house, threw on the nearest clothes to hand, grabbed an overcoat and hat from the hallway and continued with the package.

The old door man at the sanitarium surprised me with a cheery word and nod, then took the package and disappeared with it. Before I could take another step, the door opened and in came Professor Ward and an aggressive looking chap whom Ward addressed as Brownville. The other directors filed in and each was introduced to Ward in turn. Brownville rushed up to me, grabbed my hand, and introduced me as Dr. Thumtack. Then I saw it all. Even the door-man had been taken in. It was the old story of mistaking me for my absent brother.

What was I to do? Tell them that I was not the doctor, but his brother, and a messenger with drawings from one of the competing firms? Ward would never have cut the strings that held the package. Why not stay a few moments, then plead an engagement and slip away without disclosing my identity. I had often done more than that in cases like the lady with the house-maid's-knee. I decided that this was the only way to give my firm a fighting chance.

All the drawings had now been opened and set up along the wall of the directors' room. The party was making for the door. Now was my chance to disappear.

"I've got an important case this evening, gentlemen. I'll leave the choice to your superior wisdom," and gracefully sidled toward the door.

"Not much," yelled Brownville, "you agitated this whole thing and now we're at the point where the money is pledged. You've got to give your professional advice on how to spend it."

"If any of the directors sees fit to leave before a decision is

reached you gentlemen will need a new advisor," added old Professor Ward.

I wanted to call my case a life-and-death affair but desisted for fear they would suggest sending another surgeon and get me into further complications. My blood was tingling anyhow with my love of theatrics, and like an adventurous youth of more romantic times, I wanted desperately to see the situation to its end. To sit in judgment in one's own drawings, wouldn't that appeal to any architect? If you had played your brother's part a hundred times when it meant nothing, would you refuse, when such refusal lost a chance for your firm to win a competition? So into the room went Tom Thumtack, the only doctor of them all.

I began to act the Doctor to the life. I imitated his detached, scientific manner, his coldness, his positiveness and independence. Ward was just as positive, but irascible and personal to the same degree that the doctor was scientific. It was bound to be an interesting session.

I thought instantly that the choice lay between our drawings marked "A" and drawings marked "B" which were obviously impressive. The rest were nowhere. This was so true that Ward with unanimous consent immediately reduced the choice to "A" and "B."

When questioned by Ward or others, I answered with absolute truthfulness on the merits of the case in spite of the fact that "A" needed all possible support in the face of Ward's obvious interest in "B." This warmed my attitude toward "A" the merest trifle and things were getting interesting when the door opened suddenly, the chauffeur popped in and spoke these awful words, "When will Mr. Thumtack want the doctor's car?" * * * Think of it! When will Mister Thumtack want the doctor's car? In a flash I saw myself unmasked. I knew how feels the discovered spy when he draws his gun and makes his last desperate fight for God's great, green outdoors. But in the next flash, I saw as clearly that no one else had noticed the discrepancy. "Not any more tonight, Jim, no telling when we'll get through here," and out went Jim.

But I had learned another and a better lesson from those missing heart-beats. If I had been caught and caught red-handed praising my own design, was the lesser evil. The more sickening revelation was that pursuing my present course sooner or later all would believe that the doctor had used his professional authority to fight in a competition of unmarked drawings for architects of his own nomination. Ward's next question was on the merits of a certain scheme of circulation shown only in our drawings, and I began to get the doctor out of his position of partisanship. I exaggerated his caustic manner and said that the expedient was absolutely silly. This brought a startling element into the situation for Ward didn't take kindly to the tone of this rejoinder and it woke all the personal antagonism in the man. In a second I saw my real chance and all the actor in me

rose to the dramatic opportunity. I could eat my cake and have it, too. If I should take the "B" side now, he would surely take the other. His next question was directed to the best solution in our whole arrangement which was almost a Ward doctrine set up to challenge criticism. Instantly, I hit hard and low with a sharp exaggeration of the doctor's honest tactlessness, a reply impersonal, but flatly contradictory. The doctor could use such a tone and carry conviction with it for the good reasons that he was not only an absolute authority, but absolutely honest. They seemed to sense that my assertion was neither right nor honest, but only arrogant, and Ward took the bait like a hungry fish. From that point on it was war to the death and Ward fought for, and Dr. Thumtack fought against scheme "A" and the more dictatorially the doctor criticised the more positive was the professor and the more convinced by him were all the laymen. When a final expression of opinion such as Ward always asked before making his decision was requested, all the directors but myself were heartily in favor of scheme "A" and so was Ward in his conclusive verdict. Yet I know for certain, that Chauffeur Jim settled that decision.

My departure, the walk back to the house, my change of raiment, they are all of less interest than my meeting with the doctor. After a long argument I finally won him over through his sense of humor. "Well, Tom," he finally concluded, "I guess you slipped in our pinch-hitter."



MUNICIPAL BUILDING, NEW YORK

McKIM, MEAD & WHITE, Architects

THE new Municipal Building has been discussed from many standpoints. Its relation to New York's proposed group of civic buildings is an interesting one, as it will be by far the loftiest of the group and will overlook the proposed new buildings to the north, even as it now overlooks City Hall Park.

The technical papers and scientific journals have contained many technical articles on almost every feature of its construction, which, if collected, would make an interesting volume, which might very appropriately be started with the specifications of the building as prepared and printed under the direction of the Department of Bridges of the City of New York. These specifications are so complete and elaborate as to detail that, if used as an outline, they would be a good text book on the subject of specification writing for large buildings.

The building has frontages of 381 feet on Centre street, 168 feet on Park Row and 158 feet 6 inches on Duane street. The depth of the building where Chambers street passes through it is approximately 170 feet. The total height of the building from street level to the top of the tower is 580 feet. There are 24 full stories below the tower and 40 including the tower. The total office area is 648,000 square feet, and the cubical contents is over 19,000,000 cubic feet. The total cost of the building was about \$11,000,000, and it was erected from plans drawn by McKim, Mead & White, and constructed under the direction of the Department of Bridges of the City of New York by the Thompson-Starrett Company. The consulting engineers were Charles E. Knox for the electrical work; Nygren, Tenney & Ohmes for steam power, heating and ventilating; William C. Tucker for sanitation, and Purdy and Henderson for the structural steel.

The articles which follow discuss several interesting features of the construction of the Municipal Building which have not been extensively presented in other publications.

THE FOUNDATIONS.

The most difficult part of the construction of the Municipal Building was experienced in the foundations and basement excavation. The entire basement of the structure is used as a Rapid Transit station and is of large dimensions. The basement is triangular in shape. On one side there are the footings of an elevated structure and the Interborough subway is on another side. The columns of the elevated structure rest on spread footings.

The excavation was brought up against these footings and extended about twenty-five feet below their bases. On the other side, the east wall of the subway was completely uncovered and the excavation was carried to a point about 15 feet below the bottom of the subway floor.

The only soil encountered was coarse sand. This was rendered even more treacherous by the vibrations of the subway and the elevated structure due to moving trains. It is evident that a very tight sheeting was required because any settlement, even the smallest appreciable amount, would have entailed expensive repairs to the Rapid Transit structures.

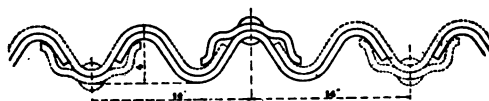


Figure 1

The sheeting selected for this work was Wemlinger Corrugated Steel-Sheet Piling type 20 D. The individual pieces of this section measure 24 inches wide and are shaped into five corrugations 4 inches deep. There is an interlocking clip on the centre corrugation. This



Figure 2.

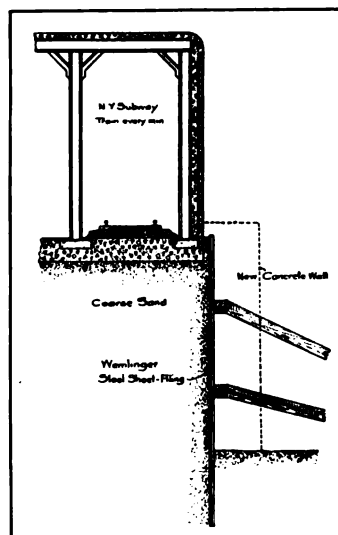


Figure 3.

clip holds the edges of the two adjacent sheets. In assembling, the sheets are overlapped for a space of two corrugations bringing the edge of the sheet under the clip. Thus a double wall



THE MUNICIPAL BUILDING FROM THE SOUTHWEST.

Elevators: Robt. Wetherill & Co., Inc.
Exterior Painting: W. P. Nelson Co.
Steel Piling: Wemlinger Steel Piling Co.
Plumbing: W. G. Cornell Co.
Loomis-Manning Filters.
Habirshaw Wire used.
Dumbwaiters: James H. Roberts Elevator Co.
Sheraduct Rigid Steel Conduit used.



THE MUNICIPAL BUILDING FROM THE SOUTH.

McKim, Mead & White, Architects,
Charles E. Knox, Consulting Electrical Engineer.
Wm. C. Tucker, Sanitary Engineer.
Nygren, Tenney & Ohmes, Engineers
for steam power, heating and ventilating.



Figure 4.

of steel is built up. There are no exposed edges of the sheets themselves.

The effective covering width of a single sheet is reduced by this overlapping to 14 inches, but the strength and tightness of the wall is considerably increased. The section modulus per horizontal foot, of this type, is 9.10' inches. The single sheets are 5-16-in. thick and the completed wall is $\frac{3}{8}$ -in. thick. The net weight per square foot of wall is 38 pounds. Fig. 1 shows a cross section of this type of piling. Fig. 2 shows the interlock in perspective.

Fig. 3 shows the position of the sheeting with respect to the subway. Driving presented

peculiar problems under these close conditions. The piling was driven only 5 inches from the wall itself. A traveler was constructed as shown in Fig. 4. It consists of a vertical pole, 8 inches square resting on a horizontal beam 10 inches square. The upright is supported by two knee braces and wire stays. A hand winch was provided to lift the hammer and an ordinary block and fall for hoisting the sheets of piling into position for driving. A channel beam was bolted to the upright and the hammer was fitted with four clamps holding it to the beam. A closer view of the hammer is shown in Fig. 5, one of the clamps is clearly illustrated. By this method of support the hammer moved directly against the subway wall and the space between the wall and the piling was reduced to a minimum. The hammer used was of the Goubert type, weighing 2,800 pounds. Steam was used under a pressure of 90 pounds in operation.

The piling was driven to an average depth of 26 feet. Careful measurements made by the Engineer showed that the settlement of the subway wall did not exceed $\frac{1}{2}$ -in. in a total length of 440 ft. of wall. A concrete retaining wall was then built against the piling and formed the wall of the basement of the building.

We quote Maurice Deutsch, C. E., on the foundations in *The School of Mines Quarterly*, November, 1910.

"The total weight of the structure itself, increased by the weight of its contents and by the stresses due to wind pressure, is estimated at about 165,000 tons, all of which will be carried by 129 main columns resting on 106 pneumatic caissons sunk through water, quicksand and coarse sand and gravel to the greatest depth to which the process has yet been used



Figure 5.



THE CENTRE STREET ARCADE.

McKim, Mead & White, Architects.

for building foundations, viz., 112 feet below water level."

The story of the foundation construction is interesting but not unusual except in the high air pressures (as high as 45 lbs.) which were used in the caissons. Not a single fatal case of the caisson disease occurred and at times as many as 500 men were employed in 24 hours. This creditable performance is due to the care exercised by The Foundation Co., who did the work.

ELEVATOR OPERATION

By Charles E. Knox, E. E.

The system of elevator operation in use in the Municipal Building is new and was devised by the writer.

The building is occupied by twenty-nine departments and the total population when all the departments occupy their allotted space will be in the neighborhood of five thousand persons. To these, regular occupants, must be added the thousands who come and go each day.

As a visitor enters the ground floor he will notice over each elevator a small frame in which there are three compartments, each compartment having a glass front bearing the lettering which designates the destination of the elevator. As the schedule of the elevators is changed from time to time the inscription can be changed by lighting any one of the three compartments. On each of the upper floors, at the end of the halls, near the windows, a larger frame is suspended, containing five compartments, each one of which bears a separate inscription, with lamps placed back of it, so that when any compartment is illuminated it can easily be read from the opposite end of the hall.



Each of these five compartments in the various signs on the upper floors is controlled by means of a switch in the dispatcher's room on the twenty-fifth floor. By the use of these switches the dispatcher can change the reading of the signs at any time, and simultaneously change the schedule of the elevators.

In front of each elevator there is a lantern which, in addition to the regular "Up and Down" light, is provided with two compartments, each of which have glass on three sides

—the upper compartment containing the word "Express" and the lower compartment containing the word "Local." These two compartments in all the lanterns are also controlled by the dispatcher from his room.

By operating the proper switches, any of these lanterns may be made to indicate either "Express" or "Local." In the case of such elevators not stopping at a given floor and when an elevator is taken out of service, the lantern is unlighted, and consequently the wait-



THE DISPATCHER'S ROOM, 26TH FLOOR.

ing passenger knows that that particular elevator does not stop or is not running.

The inscription on the signs at the end of the halls in the upper stories varies at the different floors, but inscriptions in the five compartments on the twelfth floor may be taken as typical.

Of course, all of these compartments are not lighted simultaneously—in fact, not more than three are ever lighted at the same time.

These signs, combined with the lanterns having the sign words "Express" or "Local," will tell the passengers which elevators serve the floor on which he is waiting, the floors at which they stop, which button he should push and which car will take him to his destination.

Owing to the extreme congestion during the morning inrush and the evening outrush, it will be necessary to divide the elevator service into three schedules. There are thirty-two elevators, grouped in two divisions of sixteen each—one division in the north building and one in the south building. During the morning and night rush, for a period of approximately twenty to thirty minutes, the elevators will be operated on the "Express" schedule. During this time five of the elevators in a group of sixteen will serve the first to the twelfth floors, a second group of five will serve the twelfth to the twentieth floors, and the remaining six will serve the twentieth to the



THE CHAMBERS STREET PASSAGE.

Lighting Fixtures: Sterling Bronze Co. McKim, Mead & White, Architects.
 Glassware for Lighting Fixtures: Gleason-Tiebout Glass Co.
 Imitation Granite Sidewalks: Deniville H. C. S. Co.



THE SUBWAY MEZZANINE TILE WALLED CLEAN AND LIGHT.

Tile: Wm. H. Jackson Co.

twenty-fifth floors. By this subdivision it is hoped to give approximately equal service to the occupants of all floors.

During the non-rush hours the elevators in each group will be operated in two divisions, eight elevators on one side of each group being "Local" and serving all the floors from the second to the twenty-fifth, inclusive; while eight on the opposite side will be "Express" and will run express to the fourteenth floor, serving the floors from the fourteenth to the twenty-fifth, inclusive.

Owing to the close relation between the various departments of the city there will be a great amount of inter-floor travel.

At the top of the building in two small rooms, one at the north end and one at the south end, are located the dispatchers, who act in the same manner as train dispatchers, controlling the starting and regulating the movement of each of the elevator cars. The dispatcher wears the usual headpiece of the telephone operator, and before him on his desk is a small telephone switchboard, which connects with a telephone in each of the elevator cars, the elevator machine rooms, the starter at the ground floor, and also with the office of the superintendent of the building.

In addition he has a group of push buttons communicating with a buzzer in each of the cars, which may also be used for signal purposes. Buzzers operated from a push button on the dispatcher's desk are also placed at the bottom and top of the shaft and are used for starting the cars from the bottom and from the top. The dispatcher at work keeps his eye almost continually on a signal board in plain view back of his desk. On this are sixteen rows of twenty-five signal lights, each of which are intermittently lighted. By watching any row you will see a signal at the bottom light, then it will be extinguished and the one above will light up and so on. These

lights show the movement of each of the sixteen cars in a group and show at any instant which of the cars are running, a car's exact location, the number of stops it makes and the length of time it stops at any floor. If a car should stop too long at any particular landing the dispatcher would know it, and by means of his telephone he could get into communication with the operator and learn the trouble.

In order that the dispatchers may be in a position to telephone to the operators each car is provided with an ordinary telephone set and in addition a loud speaking receiver, so that the operator may receive instructions from the dispatcher without putting the receiver to his ear. The operators are, of course, aware that their movements are being continually watched by the dispatcher and that notes are made of any irregularities in the movements of the cars.

If an operator gets habitually behind his schedule, a note is made of it and he may be disciplined or discharged. In case the car becomes fully loaded the operator has a button in his car which he presses and which lights a small lamp on the dispatcher's desk, showing him that the car is loaded. The dispatcher then proceeds to cut out the signals from that car, permitting the operator to run without stops to the ground floor. In case a car lags behind in its movements, in a similar way the dispatcher can cut out the signals and transfer them to the next succeeding car.

The service in this building is exceptional in its severity. I have made a number of calculations and also have actually counted the persons entering the building at certain periods, and I estimate that thirty-five per cent. of the building's population will enter the building in a period of approximately twelve minutes during the rush hour in the morning.

It will be seen that every means has been provided to afford good service to the occu-



THE SOUTH SUBWAY CONCOURSE.

Imitation Granite Columns and Walls: Denivelle H. C. S. Co.

McKim, Mead & White, Architects.
Wm. C. Tucker, Sanitary Engineer.



MAIN HALL OF GROUND STORY.

Lighting Fixtures: Sterling Bronze Co.
 Castings for Lighting Fixtures: Glenwood Tiebout Glass Co., Co.
 Installation: Northrup Electric Co., Denver, Co.
 General Electric Co., Schenectady, N. Y.



MAIN HALL.

Elevators: Robt. Wetherill & Co., Inc.
Imitation Botticino Marble above Cornice: Denivelle H. C. S. Co.
Fire Hose and Reels: Charles Nieduer's Sons Co.

McKim, Mead & White, Architects.
Charles E. Knox, Consulting Electrical Engineer.

pants of the building, as well as to the visiting public. It is up to them to use these means and to thus contribute toward accomplishing these results.

Sheraduct rigid steel conduit made by the National Metal Molding Co. was used and Habirshaw wire for the electric wiring.

THE ELEVATORS.

The building is equipped with thirty-two main passenger elevators arranged in four groups, and one tower elevator. Twenty-four of the main elevators travel from the first to the twenty-fourth floor, and the remaining eight from the first to the 25th, a total distance of 330 feet. The tower elevator travels from the 24th to the 36th floor, a total distance of about 160 feet.

Each elevator has a maximum lifting capacity of 3,000 lbs. and a maximum speed of 600 ft. p. m. with a load of 2,500 lbs. or less. Four



BULLETIN BOARD IN CIVIL SERVICE BUREAU.

Made by U. S. Changeable Sign Co.

of the elevators are arranged to be used as freight elevators with a maximum lifting capacity of 7,000 lbs. at a slow speed.

The elevator machines are located overhead, each machine consisting of a traction drum of large diameter geared to a powerful variable speed electric motor.

The hoisting cables, which consist of six $\frac{5}{8}$ -in. steel wire ropes, are fastened at one end to the car and at the other to the counterweight, and each cable is wrapped around the traction drum two and one-half turns. This novel arrangement, which gives enormous tractional power and eliminates all idlers and extra bends of the ropes, possesses a good many advantages. The wear of the ropes is greatly reduced, and the fact that it is almost impossible to detect that the ropes have been used at all after the elevators have traveled several thousand miles, seems to indicate that the life of the ropes will be very long. The tractional power is ample to lift loads four or five times the maximum normal loads, and the possibility of the ropes slipping on the drum, through an overload in the car, is therefore eliminated.

The gearing is of the double worm and gear type enclosed in a cast-iron casing and running in oil. The worm gear shafts are connected together by means of double helical gears.

The motors are of the direct current interpole type of special design, having a speed ratio of about three to one with shunt field control.

The electric control apparatus represents the most elaborate equipment obtainable with regard to refinement of control and safety. The stopping, starting and reversing of the elevators can be done with great ease and precision



A TYPICAL OFFICE CORRIDOR.

Painting: Bernard Brindze & Co.
Glassware for Lighting Fixtures: Gleason-Tiebout Glass Co.
Lighting Fixtures: Edward Schroeder Lamp Works.



THE TAX BOARD ROOM.

Lighting Fixtures: Edward Schroeder Lamp Works.
Glassware for Lighting Fixtures: Gleason-Tiebout Glass Co.
Plastering: John W. Kissell, Inc.

Grant Overhead Pulleys.
Stanley Ball Bearing Butts.

without any unpleasant jumps or jars, and the running of the elevators is very smooth.

The elevators are controlled by a hand switch in the car which is provided with a series of contacts so as to allow considerable variations in the speed in either direction. Limit switches on the car and in the hatchway are arranged to properly slow down and stop the car at top and bottom landings.

The mechanical brake is arranged directly on the traction drum and consists of two extra heavy brake shoes partly encircling a flange cast on the drum and operated by heavy coil springs and powerful electro magnets in the usual manner. A dynamic brake is used for slowing down the elevator so that the function of the mechanical brake is mainly to hold the car stationary after stopping.

Each car and counterweight is provided with an overhead governor and a guide clamping safety device which cuts off the electric power and grips the rail when the elevator attains an excessive speed, so that the elevator is quickly retarded and stopped without shock or jar. The car governor is also provided with a slow down switch, which controls the maximum speed of the elevator within a 5 per cent. variation in either direction.

At the bottom of the well room an oil buffer is provided under each car and counterweight. These are of usual construction and of ample capacity to stop the loaded car or counterweight when running at its maximum speed.

The retarding devices at the top of the well room which prevent the cars or counterweights from running up into the overhead work form another interesting feature of this elevator installation. These retarders consist of steel cylinders, filled with oil, and mounted on guides adjacent to the main guide rails of the cars or counterweights. The upper end of each cylinder is provided with a stuffing box, and contains a piston with a rod, the upper end of which is fastened to the structural steel work of the building. The cylinders are provided with projections adapted to engage striker plates and also hooks or catches carried by the car or counterweight, so that in case either car or counterweight should run above the top landing, the retarders will quickly and effectively stop it and hold it suspended independent of the hoisting ropes, until the hooks or catches have been released. Repeated tests on all these safety devices with the elevators running at 700 ft. p. m. have shown them to



TYPICAL TOILET ROOM EQUIPMENT.

Flush Valves: Murray & Sorensen.
 White Pyralin Closet Seats: C. F. Church Mfg. Co.
 Plastering: John W. Kissell, Inc.
 Plumbing: W. G. Cornell Co.

Wm. C. Tucker, Sanitary Engineer.
 Wrought Iron Pipe: Reading Iron Co.
 Evan's "Crescent" Expansion Bolts.

be very reliable and uniform in action, and the stopping of the elevator has been accomplished without any inconvenience to the persons riding in the car.

The elevators have shown themselves to be very efficient both with regard to cost of operation and to their ability to handle the great number of people who are daily streaming in and out of the Municipal Building.

The builders of these elevators were Robt. Wetherill & Co., Inc.

THE PLUMBING WORK.

By William C. Tucker, Ph. B., C. E.

The drainage of the building is provided for by two 14-in., one 8-in. and one 6-in. house sewers with trap and fresh air inlets as the law requires, which connect with the public sewers in Duane Street, Park Row and Centre Street. The two 14-in. drains extend up through the building on either side of Chambers Street to the fourth floor at which point they extend horizontally with branches connecting with 24 vertical soil and waste lines, which extend up through the building and receive the discharge from all fixtures. There are 14 leaders from the different roofs which also connect with these 14-in. drains. The 8-in. sewer provides for the drainage of the machinery room on the westerly side of the subway and from fixtures below the fourth floor; and also the drainage from the court facing Centre Street. The 6-in. sewer provides for the drainage from the

subway and engineers' toilets in the mezzanine. The drainage of the boiler room floor, which is below the sewers in the street, runs to a brick sump which is discharged by an automatic submerged centrifugal pump, with a hand operated steam siphon as an auxiliary.

All sewer pipes beyond the building or in contact with earth are extra heavy cast iron laid on concrete foundation to prevent settling. The horizontal drains inside the building are extra strong galvanized wrought iron and the vertical soil, waste, vent and leader pipes are standard galvanized wrought iron. All pipes are securely held in place by special wrought iron pipe hangers and clamps attached to the structural steel.

A 4-in. vitrified tile acid drain, encased in concrete and sheet metal casing, has been installed from the Duane Street sewer to the tower to provide for a laboratory which the building is to accommodate.

The water supply of the building is obtained through three 6-in. taps in the city mains in Duane Street, Park Row and Centre Street and runs through six fish traps and Worthington disc meters.

The entire water supply of the building is filtered. The filter plant consists of five sets of Loomis-Manning double cylinder, cast iron filters, the combined capacity of which is 750 gallons per minute. From the filters the water passes into a 15,000-gallon steel suction tank under the street pressure. From the suction tank the water is pumped into steel storage



FIRE AND HOUSE PUMPS.

Wrought Iron Pipe: Reading Iron Co.

Habirshaw Wire used.

Star Expansion Bolts.

Switchboard Grille: Wm. O. Chapman Co., Inc.

Sheraduct Rigid Steel Conduit: National Metal Molding Co.

Nygren, Tenney & Ohmes, Engineers
for steam power, heating and ventilating.
Charles E. Knox, Consulting Electrical Engineer.

tanks located on the 14th, 26th and 35th floors. There are five steam-driven, Worthington compound pumps, three with a normal capacity of 500 gallons per minute each, and 1,000 gallons per minute under fire service, which can be used to deliver water into the tanks on the 14th and 26th floors or into the fire system. There are two smaller pumps with a capacity of 300 gallons a minute each which deliver the water into the tanks on the 35th floor.

The tanks on the 35th floor were built to fit the space conditions and are four in number with a total capacity of 6,500 gallons, and supply water to all fixtures on the 26th floor and above. There are two tanks on the 26th floor with a total capacity of 30,000 gallons, which supply all fixtures from the 14th to the 25th floor inclusive. The tank on the 14th story has a capacity of 18,000 gallons and supplies all fixtures below the 14th floor except in the mezzanine, which is supplied from the street pressure. The location of the tanks at these three levels eliminates the excessive pressure which would have resulted by placing all tanks at the high level and thereby necessitating the use of pressure reducing valves which are considered a source of constant trouble.

From each series of tanks water is carried to hot water heaters in the machinery room. There are three heaters with a capacity of 2,000 gallons per hour each, one of which supplies up to the 13th floor, one from the 14th to 25th inclusive, and the third is so connected

that it may be used for either the low or intermediate pressure. There is one heater with a capacity of 1,000 gallons per hour which supplies the 26th floor and above. Adjoining each hot water riser there is a circulation pipe which carries the hot water back to the heaters thus keeping a constant circulation in the piping system and insuring hot water at the fixtures immediately.

To eliminate the nuisance of delivery of bottled spring and mineral waters together with ice, a complete drinking water system has been installed. The water from the house storage tanks is refiltered and cooled to 40 degrees by a 20-ton Carbondale refrigerating plant of the absorption type. The water after being cooled is circulated through the building and delivered to at least one basin in every office by three circulating pumps.

The building contains a complete fire system as required by the New York Fire Department. This consists of four Siamese connections on the streets through which the city fire engines can pump water up through four stand pipes adjacent to each stair well. At each floor from each stand pipe, there are provided valved branches and sufficient hose with nozzles to reach all parts of the floor. The fire hose and reels were supplied by Charles Niedner's Sons Co. There is also provided connections to each series of tanks which contain a reserve for fire service, so there is ready for immediate delivery sufficient water to permit the occupants of

the building to use the equipment until the fire department arrives.

The building is equipped with a vacuum cleaning plant which consists of three Spencer turbine air drawing machines sufficient to operate 24 tools simultaneously, a dust separator and a system of piping and outlets. The outlets are so placed that with 75 feet of hose attached all parts of the building can be cleaned.

Gas outlets are placed in stair wells and corridors only and are to be used only in emergencies.

Special attention was given to the elimination of bright metal work about the plumbing fixtures and wherever possible utility corridors were placed behind fixtures and all moving parts were placed behind the walls. Where this was impossible the exposed parts were made of white metal. All water closets and urinals are equipped with flush valves made by Murray & Sorensen. The closet seats are made of white Pyralin made by the C. F. Church Mfg. Co.

The pipe used in the plumbing work is genuine wrought iron made by the Reading Iron Co., the fittings being malleable iron of special long turn pattern. All valves are solid wedge gate valves of the Monarch Co.'s make. All exposed cold water pipe and fire lines are insulated with 1-in. solid wool felt, all hot water pipe with 65 per cent. carbonate of magnesia, and all ice water piping with molded cork 1½ inches thick.

All essential parts of the plumbing system have been installed in duplicate and are so

cross-connected that in case of accident or for repair the service will not be interrupted.

The plumbing work, for which the writer was the Sanitary Engineer, was superintended by James A. Coyle, Jr., of his office and was installed by the W. G. Cornell Co.

In the interior finishing of the building John W. Kissell, Inc., had the plastering contract, and metal lath was supplied by Arthur Greenfield, Inc. The Denivelle H. C. S. Co. did imitation stone work which is to be seen in the ceilings of the main halls where an imitation of Botticino marble has been produced and in the subway concourse and Chambers Street arcade where imitation granite is extensively used for side walls and pilasters. The W. P. Nelson Co. painted exterior work and Bernard Brindge & Co. interior walls of stairways, etc. For interior lighting special fixtures were designed to give thorough diffusion and low intrinsic brilliancy. The first floor fixtures were made by the Sterling Bronze Co. and all fixtures above the second floor by the Edward Schroeder Lamp Works. Camia glass and Polycase globes made by the Gleason-Tiebout Glass Co. are used throughout.

The dumbwaiters were made by the James H. Roberts Elevator Co., Wm. O. Chapman Co., Inc., made the metal grillework about the switchboards and the bulletin boards were made by the U. S. Changeable Sign Co.



BRONZE RADIATOR ENCLOSURE.

Made by John Polachek Bronze
& Iron Co.

THE OFFICE BUILDING—NEW AND OLD

By EDWARD ROCHIE HARDY

What is an office building—and we mean now the modern steel structure and not the non-fireproof building? This is now the established type for office purposes, not merely in local territory, but all over the United States. There are very few buildings even in New York City, scarcely one north of Chambers Street, that can be filled with tenants whose occupancy may be classed as that for office purposes. In a great majority of these structures there is a certain proportion of sample-stock tenants, and a business occupancy of stores, at least on the first floor, and usually the basement and first. In the development of any live business it becomes necessary from time to time to revise the definitions and readjust the classes which the definitions cover. For many years a building of this type was considered an office building if it conformed to the following definition: "Office buildings include partial occupancy by sample stocks or small restaurants or grade-floor stocks." This definition is general, and permitted more or less leeway on the part of the one whose duty it was to decide whether a building fell within the office class or not. After an experience of about ten years, a somewhat more elastic, and yet at the same time more clearly defined, rule was adopted.

The insurance on the contents of an office building of the type we are considering, so far as the strictly office tenants or even sample tenants are concerned, is usually a matter of minor consideration. If any is carried in such cases it is usually so small an amount that the premium involved is not a matter of serious consideration to the tenant. Large lines may be involved below the second floor where the stock conditions prevail.

The rate of insurance on the building appears usually to be of more consideration to the parties in interest than the rate on the tenants; but it should be emphasized that as the basis for the tenant's rate is the structural conditions of the building it follows that the nearer the building approaches standard conditions so much lower will the rate be for the tenant. As an instance of the wide range in the rate of insurance on these properties, the rate today on possibly the earliest building erected of this type is .316 for each \$100, while on buildings of the same height and class the minimum rate of .05 is secured.

The first building is eleven stories high, and the second is fifteen, with a rate for office furniture and fixtures on the fifteenth floor of .644, which is less than the rate on the fifth

floor in the first-named building, although height is an important factor in the problem.

The principal factors taken into consideration determining the insurance rate fall under the following items: The key or basis rate of the city; the walls; unprotected metal members; height; floor; type of arch; floor openings; skylights; width of street; unprotected stone piers; columns, etc. All of these items may, under proper guidance, be so taken care



THE LINCOLN TRUST CO., 204 FIFTH AVE.,
NEW YORK.

C. P. H. Gilbert, Architect.

of with the exception of the height, basis, and width of street, as to make no change in the rate of insurance. We have learned how to protect the metal members in our fireproof buildings, but a large advance is still to be made in the floor openings.

The reductions which apply in the computation of the rate cover such items as fireproof floor surfaces; metal trim; standpipes; the office occupancy condition; watchman service; auxiliary private fire plant, and fire pails. There are many properties which are receiving the maximum allowance under all of these items, and as they amount in the aggregate to more than 60 per cent. of the charges made at the points where the reductions are allowed they should be carefully considered by the parties in interest.

The exposure charge on buildings of this type is becoming of less moment, due to the fact that they tend to mass themselves in that portion of the city where the older types of buildings are passing away. In other words, they are exposed largely by fireproof structures, and the exposure is based on the generally low rates prevailing on this type of risk.

The fireproof building in its earlier erection was overestimated, and many inferior types were deemed unassailable by fire. Experience proved the contrary, though until the Baltimore fire in 1904 the office structures were not severely tested. The same lesson was, two years later, in the San Francisco fire of 1906, driven home once more.

While these structures come through conflagration and even severe fires with the steel members and the walls usually in fair condition, the destruction otherwise is quite complete, and as the equipment and finish form a large part of the cost the loss on such properties is found to be very heavy.

Co-operation. An instance of the spirit that is at work between the underwriters and the architects is shown by the pamphlet of General Information concerning fire insurance requirements, dealing especially with reference to fire prevention. The co-operation is shown in the fact that this is a joint publication, the parties being the New York Chapter of the American Institute of Architects and the New York Board of Fire Underwriters. Copies may be secured from either body.

Fire Alarms in London and New York City. An interesting report has just been printed which enables a comparison to be made between London and New York in regard to the matter of fire alarms. A certain form of prevention service which is found

Many attempts have been made to secure wired glass in properties of the type of construction which we are discussing. Where the exposure is somewhat severe, it is now usually possible to secure this type of glass which makes an excellent fire retardant, but there exists a very strong feeling that if the buildings could have, not merely where the exposure seems to make it advisable, but throughout their entire exterior walls, wired glass in place of the usual kind, that the advantage would be of mutual benefit.

It must be understood that the more nearly a fireproof building attains to a high standard as to cut-offs and interior construction, so much more does it make of each floor a condition equivalent to a furnace; but, if the walls of this furnace are in good part of ordinary glass, they will yield very readily to a fire on any floor, and the flames reaching the floor above from the outside will spread the fire in that manner. We have, in other words, a condition of floor openings, so to speak, on the outside of a building although the greatest care may have been exercised in guarding the floor openings on the inside. Objections are raised usually by the real estate interest, very frequently, we understand, by the tenants to having wired glass in the windows because, as it was expressed by one tenant: "It made him feel like looking through a chicken coop." This is more a state of mind than a state of fact, and in due course we rather expect to see this view of the matter pass away and the wired glass window come into its own. In an effort to introduce this feature in these buildings special concessions have been made in the rate of insurance, but the only building which is qualified in this city, and perhaps the only one in the world, is a building recently completed, known as the Walker-Lispensard Telephone property.

in both cities develops the fact that in London the number of fires attended by this service for the years 1911, 1912 and 1913 exceeded by 300 the number attended by the same form of service in New York City in the year 1913. In other words, there were three times as many fires to respond to in the one city as in the other. Is it any wonder that the rates of insurance are so much higher in the United States than they are in England and on the Continent?

Sprinklers Required.

On July 15th the Court of Appeals upheld the decision of the lower courts in the case of Charles Kaye. Mr. Kaye had refused to install, in accordance with the decree of the Fire Department, a sprinkler system in his loft building at 30-34 West 25th Street. Quite broad powers are vested in the Fire De-



THE LINCOLN TRUST COMPANY, 204 FIFTH AVENUE, NEW YORK.

Electrical Contractors: J. Livingston & Co., Inc.

Corbin Hardware.

Grant Overhead Pulleys.

Bommer Spring Hinges.

Evan's "Crescent" Expansion Bolts.

Stanley Butts used.

Otis Elevator.

Loomis-Manning Filter.

Star Expansion Bolts.

C. P. H. Gilbert, Architect.

partment to order fire fighting devices, including sprinklers. On other points there have been decisions in the lower courts maintaining the authority of the Fire Department, but this was the first case where the highest court was called upon to decide the question. The



REVOLVING DOOR AT ENTRANCE
OF THE MARINE NATIONAL
BANK, BUFFALO, N. Y.
Made by the Atchison Revolving Door
Co.

decision, it is said, releases about 160 orders which are pending against different properties and which have been held up awaiting the decision.

**Boston
Stands
Firm.** An attempt to undo the work of expanding the fire lines in the City of Boston has met with a sharp rebuke from the Mayor, who deserves the very highest credit for vetoing the bill which would permit the present generally bad conditions in Boston to be continued. In his veto message he says:

"The fact that Boston has never experienced

a destructive fire in the section to-day covered with inflammable structures is not good ground for the assumption that it is to be permitted to escape in perpetuity. In my opinion, it is absolutely imperative that no backward steps be taken in the matter of reducing the unwarranted per capita loss now borne by the entire people for the benefit of real estate speculators and misguided altruists, who neither own nor live in three-apartment wooden houses."

Fire Prevention Day.

October the 9th, the anniversary of the great fire of Chicago, 1871, has in many of the cities now become the day which is officially designated as Fire Prevention Day. The City of New York rather outdid itself in its efforts to commemorate the day, and the movement is evidently one which is being taken in a serious and effective manner by the community. Many of the department stores included a mention of fire prevention work in their advertisements in the public press. As if, however, to show that it was still in business, just after 12 o'clock at night a notable fire occurred at Columbia University, resulting in a heavy loss on the gymnasium building, which includes the central power plant for the whole university.

The Private Residence.

Should the private residence have special fire protection devices? Why not? Is not the investment in such residences as are represented in this issue far beyond that of the average mercantile property? If a mercantile property, the valuation of which is \$40,000, is considered worth the high-grade protection of sprinklers, why not the dangerous parts, the manufacturing parts, so to speak, of a private dwelling, even if the protection be not extended throughout? There is no reason why this should not be done. That is, the below-grade conditions sprinklered, as they are in many an office building. Coupled with the saving of the property, with its valuable and often priceless adornments, there is the question of human life which cannot be translated, of course, into dollars and cents.



THE MARINE NATIONAL BANK, BUFFALO, N. Y.

Architectural Terra Cotta: North Western Terra Cotta Co. Green & Wicks, Architects.
Revolving Doors: The Atchison Revolving Door Co.
Steel Frame Painted with Kardite Rust Inhibitive Paint made by John Lucas & Co., Inc.
Enameled Brick: American Enameled Brick & Tile Co.
Evan's "Crescent" Expansion Bolts used.
Otis Elevators.
Bronze Work: John Polachek Bronze & Iron Co.



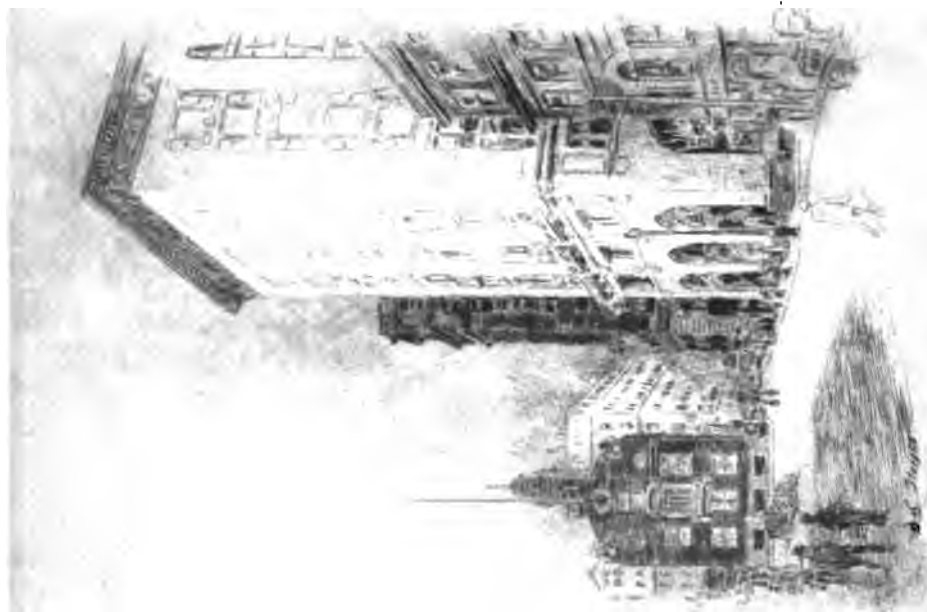
BANKING ROOM OF THE MARINE NATIONAL BANK.

Metallic Furniture: The Van Dorn Iron Works Co.

Directory Boards: The Tablet & Ticket Co.

Bronze Work: John Polachek Bronze & Iron Co.

Green & Wicks, Architects.



THE MERCHANTS' NATIONAL BANK, BOSTON, MASS.

Shepley, Rutan & Coolidge, Architects.

Otis Elevators. Bolts.
 Star Expansion Bolts.
 Evan's "Crescent" Expansion Bolts.
 Loomis-Manning Filters.
 Plumbing: W. G. Cornell Co.
 Clock System: E. Howard Clock Co.

THE MERCHANTS' NATIONAL BANK, BOSTON, MASS.

SHEPLEY, RUTAN & COOLIDGE, Architects

FOUNDED in 1831 as the Merchants' Bank, this institution secured the site at No. 28 State Street in 1836 and gradually increased its holdings until the area covered by the present building was acquired. The building erected in 1857 was a landmark in Boston until its demolition in 1912 to make way for the recently completed new building, which is a monumental structure. Its style of architect-



ure is an adaptation of the Renaissance to suit modern conditions. The entire building with the exception of a part in the rear, stands in the open, bounded by State, Devonshire and Exchange Streets. This exposure gives abundant light in every office and stairway. All three façades are faced with limestone.

The building is absolutely fire-resistant, no wood entering into its construction. All partitions are of terra cotta or metal. The floors are either marble, or concrete covered with linoleum. All window frames and sashes are of bronze. This fire-resistant feature extends to the furniture of the bank which is of metal, designed by the Van Dorn Iron Works Company.

The bank will occupy the first, mezzanine and second floors, as well as the entire basement. Separate entrances direct from State Street serve this portion of the building. The security and book vaults are located in the basement. The general banking room and officers' rooms occupy the first and mezzanine floors, while space for the clerks and future extension will be provided on the second floor. A separate elevator and stairway furnishes communication between the banking quarters on these several stories.

The entrance to the office elevators is on the corner of State and Exchange Streets. From this vestibule a door gives access to the bank. The walls of the first story are lined with Botticino marble, while the elevator grilles are of ornamental iron.

The monumental appearance of the building is designed to signify the importance not only of the new banking quarters, but of the standard of the offices located above. A beautiful arcade, composed of large arched openings, forms windows to the bank. Above this rise eight stories, the window openings of which have been grouped in a most effective manner in order to give large glass surfaces and insure the maximum amount of light. The whole is crowned by a rich entablature and balustrade, the cornice of which is beautifully carved.

Among the modern conveniences, a certain number of offices will be provided with open-hearth fireplaces. The vacuum cleaner system has been carried throughout the building. Also there is a clock system, centrally controlled, which was installed by the E. Howard Clock Co. All corridors throughout are wainscoted with white Carrara marble and have curved sanitary bases and marble floors. Curved marble bases are also provided throughout the offices to insure easy cleaning.

Eight floors are to be rented as offices and every office will front directly upon a street,

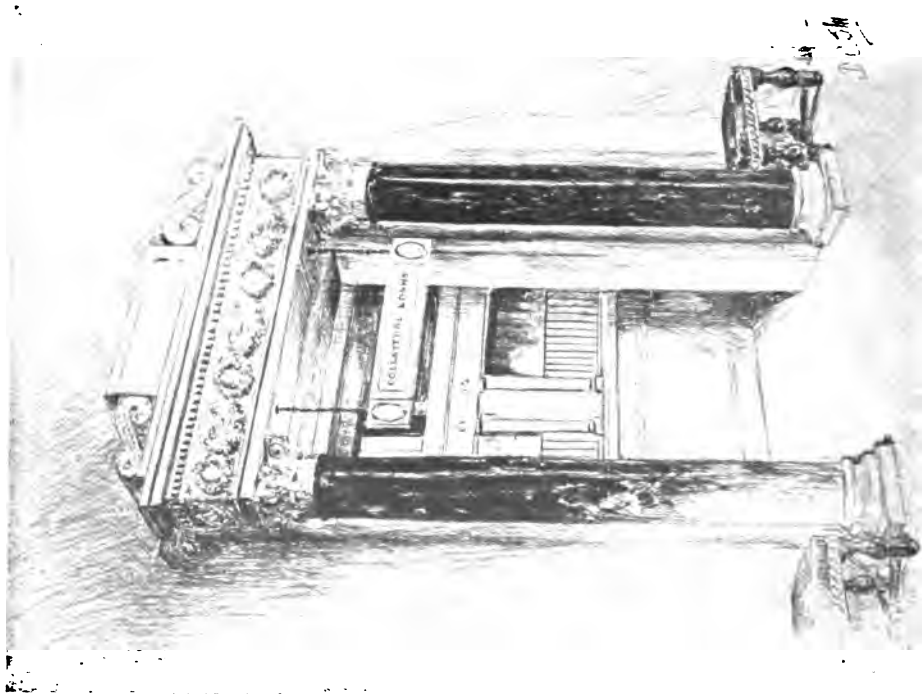


thus affording exceptional advantages of light and air. A typical floor in the building is one with fifteen offices all grouped about a central corridor from which four high-speed elevators connect them with the streets. The offices are so connected with each other by communicating doors that any desired arrangement of suites may be made.



THE MERCHANTS' NATIONAL BANK.

Shepley, Rutan & Coolidge, Architects.



Clock System: E. Howard Clock Co.
Metallic Furniture: The Van Dorn Iron Works Co.
Engineer for Layout and Technical Furniture, Thomas Bruce Boyd.



THE MERCHANTS' NATIONAL BANK.
Metallic Furniture: The Van Dorn Iron Works Co. Shepley, Rutan & Coolidge, Architects.

The vaults of the bank in its new building bear no resemblance whatever to those in its former home, considered in its day the best in the city. The doors of the present vault are very heavy, weighing approximately 75 tons. The lining of the vault is of the heaviest type, being built of chrome steel and iron welded and open-hearth steel of alternate layers, of

the most modern construction, and these are further protected by a double railroad iron grillage embedded in concrete of rich proportions. In addition to this vault, there are other vaults for the storage of books, papers and other documents, giving to the bank a most complete equipment for the conduct of its business for years to come.



THE MERCHANTS' NATIONAL BANK.



Builders: Turner Construction Co.

Cass Gilbert, Architect.

WAREHOUSE AND OFFICES OF AUSTIN, NICHOLS & CO., INC., BROOKLYN, N. Y.

One of the interesting facts brought out by this building is that a vast mercantile establishment and a monumental structure may emanate from the same source, and yet each possesses distinctive characteristics and each be perfectly suited to its purpose. Just as the Woolworth building represents the highest development in office structures and is a monumental ornament to Manhattan, so the new warehouse and manufacturing plant of Austin, Nichols & Company, Inc., represents the highest development of its particular type, in Brooklyn. Both buildings were designed by Cass Gilbert, and where one represents a successful architectural treatment in the extremely ornate, the other reaches the opposite extreme in plainness.

Built entirely of reinforced concrete and consisting entirely of non-combustible materials, the Austin, Nichols building resembles an enormous box. Even the window openings are mere perforations in the wall. The cornice is nothing more than a curving out of the wall to make an overhang. No design

could be plainer and yet the building gives the impression of having been designed and not just built. It is 440 feet long and 180 feet wide and consists of six stories and basement. The construction was carried out by the usual methods employed by the builders, the Turner Construction Company. There are eight elevators, one passenger and seven freight, of the overhead traction type. There are seven stairways running from roof to street level and the basement, all of the fire tower type, with vestibule entrances from the floors protected by fire doors. Metal sash are used throughout, the windows being pivot hung and every sash is glazed with wire glass. The elevator openings are protected with Peele counter-balanced elevator doors, and even the vertical openings of the spiral package chutes are protected by balanced doors on fusible links. An automatic sprinkler system is installed throughout, which is supplied from two groups of pressure tanks upon the roof. There are emergency pumps of large capacity which can be used to supply the sprinkler system with river water. The



THE SALES ROOM AND PRIVATE OFFICES.

only fire possibility is that from produce in storage and the probability of fire spreading from floor to floor is limited, as all windows are glazed with wire glass. As for water damage, there is slight opportunity for this, as there are no stairway openings directly on to the floors and overflow from the sprinklers would be taken off, as drains are provided at frequent intervals.

The mechanical end of the building is simplified to the utmost, as it consists of the heating plant with four Fitzgibbon boilers which also furnish steam for the operation of pumps and manufacturing purposes. All other power and lighting comes from the Edison service.

There is a refrigeration plant for the cold storage rooms, and pumps for the operation of the pneumatic tubes. All piping throughout the building is exposed and is painted in different colors to distinguish the various service lines.

Really more interesting than the structure itself is a consideration of the building from the standpoint of service. This is where the careful planning really comes in. What Henry Ford has done in the organization of an automobile factory, the firm of Austin, Nichols and Company has done for a systematized, productive organization in groceries. The aim has been to so organize the establishment that there will be a minimum of handling of both



GENERAL VIEW OF SALES ROOM.

Sprinkler and Heating Contractors: W. G. Cornell Co.
Slate: Penn Slate Co.
Lighting Fixtures: The Simcs Co.



THE FREIGHT TRACKS AND SPIRAL PACKAGE CONVEYOR.

Builders: Turner Construction Co.
Knickerbocker Portland Cement used.
Loomis-Manning Filters.
Star Expansion Bolts used.
Stanley Butts used.
Chutes: The Haslett Spiral Chute Co.
Gamewell Fire Alarm System.

Cass Gilbert, Architect.



COUNTERBALANCED FREIGHT ELEVATOR
FIREDOORS.

Made by The Peelle Co.

raw and manufactured products, that a well-supplied and constantly available stock of all products may be always on hand and that filling of orders and shipments may be prompt and accurate, with the minimum of spoilage and breakage. We will consider the business from two sides, first that of supply of raw materials, and second of distribution and sales of finished products.

On the river front there is bulkhead space of over 200 feet with a long dock extending out and an adjoining slip for carfloats besides. Two or three lighters may be handled at once. To provide for freight coming in by rail, there are three tracks running through the first story along the entire north side of the building. The freight platform near the building is for outgoing shipments, but along the outer wall there is a large platform giving access to the outer track in the building and one track outside the building, where two lines of freight cars each 500 feet long can be unloaded at once onto small electric trucks, which run directly onto the big freight elevators and off at the proper story. A carload of case goods can be unloaded and packed away for storage in a corner of the fourth floor, for instance, in 50 minutes. In stacking cases, aisles 3 feet wide are left between the stacks so as to give ample room for handling. Bulk products such as coffee, rice and other cereals, olives, etc., go to their respective rooms handy to the packing rooms, whence they are sorted, cleaned, packed, labeled and restored, ready for the customer. Occupying one great corner on the river front side of the top story is the largest coffee roasting room probably in the world. Here in a space lighted by great skylights, the coffee is roasted and then passed down chutes through the floor into great storage bins on the story below, where the pack-

ers seal it in cartons, a finished product. Just so the 500 or 600-gallon casks of olives direct from Spain, go to the original packing room where they are washed, packed, labeled and cased, to go into the storage room. Thus we could go on for many products which are handled in a similar systematic manner in the minimum of time.

We will now consider the sales organization. A passenger elevator takes one from the main entrance hall to the sixth floor where the office and clerical force of the establishment occupies about one-half the story on the land side. The plain private offices of the officers of the company extend along the south wall. The clerical force and credit department occupy a great room on the south side toward the middle of the building. Extending along the entire front to the east is the sales room. Along the north and east sides of this room are the sample booths, glass display cases containing the multitudinous products. An intervening aisle separates this space from the desk room for the buyers and their assistants. Another section within is occupied by the desks of the salesmen. The whole is one great open floor, lighted by windows and skylights, and well ventilated and clean. It is systematized and grouped so that every order goes in straight lines. An incoming order first passed by the credit department, goes through the pneumatic tube service to the proper stock room for filling. There are pneumatic tube stations connecting every department with a central exchange on the first floor mezzanine. This assures rapid handling of all orders. To get products from the storage room to the shipping floor, a system of spiral chutes is arranged. There are three of these, one near each end and another at the center of the building. There are three divisions in each chute which run down to the first floor. One to make delivery to the east end, one to the west end by horizontal conveyors and the other to the middle of the building into the various shipping rooms. This system operates so well that it has been found possible to have a case of canned goods out on the street shipping platform ready for a city delivery truck within two minutes from the time the order was received. The first floor is the shipping department. Along the north side is the platform for outgoing freight, separated from the building by large folding doors. On the south side is the platform for city delivery by wagon and truck. The east end on the river is used for receiving all bulky products coming by water.

Comparison of this systematized organization with conditions that existed in the crowded Manhattan quarters of the firm, or with those which exist in most large mercantile establishments, will show a wonderful reduction in cost of handling and elimination of

waste. This firm is really discounting the future in moving into the great new building in Brooklyn. They are on the line of one of the new subways in the path of future development.

—
To build this concrete structure it took 45,000 barrels of Knickerbocker Portland cement. The roofing contractors were the Herrmann &

Grace Co., who used Barrett materials. The interior slate was supplied by the Penn Slate Co. The sprinkler system and heating plant was installed by the W. G. Cornell Co.

The spiral chutes and conveyors were put in by The Haslett Spiral Chute Co. and The Peelle Co. installed their counter-balanced freight elevator doors. Lighting fixtures were made by the Simes Co.



THE ROOF WITH RECREATION PLATFORM.

Barrett Specification Roof.

Royal Ventilators.

Contractors for Roofing and Copper Work: Herrmann & Grace Co.



RESIDENCE FOR LEWIS G. MORRIS AT 1015 PARK AVENUE, NEW YORK.

Ornamental Iron: The Wells Architectural Iron Co.
A. B. See Electric Elevator.
Loomis-Manning Filter.
Corbin Hardware.

Ernest Flagg, Architect.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

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Modern civilized life, according to certain dissatisfied people, is made up of a few producers and a vast army of deadheads who live on the producers. Looking at it from another point of view life is made up of an army of brainy people who act in various capacities—among others as efficiency engineers—to direct a few brainless laborers who do the actual work.

Look at these intelligent people struggling to get their share of the usufruct. Today's paper, for example, says that the farmer gets 17 cents per dozen for eggs which are sold to the consumer for from 35 cents to 50 cents.

Now, I say that that difference is not profit nor is it plunder. It is a necessary contribution of the public to the cost of the public's own living.

The grocery man up on Broadway, for instance, who has to struggle with a shifting clientele—a clientele which won't stick but trades all over town, down at the markets and department stores and over on Third Avenue—this poor grocery man who has to pay a fancy rent and support a wife and children, and educate the children, has to sell a whole lot of eggs even at the highest price and a lot of other truck to show him even a living profit.

Many a time I have sympathized with one or another of them who lost a good customer, meaning myself, by trying to help out on some of his bad accounts by padding his bill with items that never were delivered. I have sympathized with them all right and in the kindness of my heart wished them joy of all the easy marks they had among their customers who would pay their padded bills without quibbling and kicking and transferring their business to some other tradesman who would no sooner feel himself well established than he in turn would start the same old game—padding the bills for enough to help keep soul and body together.

(I spoke last month of an architectural story that was due. Don't be impatient, gentle reader; the story is going to be in here, but it wouldn't do to begin this essay with such a thing. We must have a little patter by way of preparation.)

If this little grocery man, as I was saying, could buy those eggs for 5 cents a dozen and sell them at a small advance all would be well. But he doesn't. He can't. And besides there's a whole lot of people that have to get a part of that difference between the farmers' price and the consumers' price. The grocery man does not get it all by any means.

And eggs are not the only thing that the city people have to live on or live off. Everything we buy has to be loaded with its part of the contributions which the city people have to make for their own support.

All these attacks on the middleman, and this talk about doing away with him, make me laugh. Every little citizen who wakes up in the morning and dresses himself and sits down to his breakfast with his newspaper spread out before him is a middleman.

He gets to his newspaper and commences to read about the war against the middleman.

Meaning the war against himself.

I wonder if he or his boss has any unsuspecting customers in these—well, we'll call them—interesting times that are asked to stand for a few padded bills? Only the echo to answer, and maybe it is silent.

If there were only a few less competitors in these troublous times—oh, about a tenth as many as there are! Or would that be few enough? Well, say a hundredth! Then all would be well. With the demand undiminished each grocery man might then sell enough eggs alone to pay the rent and pay for the eggs, cover the losses on bad accounts and buy clothes for himself and his wife and his children. All the rest of the truck—potatoes, flour, butter—he could give away as premiums and cut out the trading stamps.

And all the rest of you middlemen would be happy, too, if ninety per cent. of your competitors would cease to compete but still keep on consuming, which does not mean having consumption, my doughty reader, but eating, drinking, wearing things out and using them up.

All you men that live in the city, every man Jack of you, are middlemen. The only real producers are the farmers who bring the eggs of their own hens to the market and plow the ground and raise the other truck for city people to use up. There is another class of producers, the miners, but they don't live in the cities either.

You builders think you are producers; your mechanics perhaps think they are—they are working with their hands. But they are not, they are middlemen. If they are in the cities they are simply building houses and factories in which they or other middlemen live or carry on their business of being middlemen.

The whole fabric of civilization is supported on the little that is

raised out of the ground. It has to be. There is no other way for it. You were taught this when you went to school, and you've been told the same thing a thousand—or is it a hundred thousand?—times since.

In the old days people did not seem to care so much about how much the middlemen made. Those were the days when more lived in the country and fewer lived in the cities. When the balance between city and country was disturbed—destroyed—by the rush to the city, the trouble began. And now a condition that in some ways is as near what General Sherman called it, as anything can be, is upon us.

At the present time people seem to be holding inquests upon one another. Few hold inquests upon themselves; but that is the way of the world.

Lots of things that used to be done are not done any more. A homely sentence, but one whose meaning is clear, I think.

Here is the story of the architect. He was not a prominent one, just a plain ordinary common or garden variety of architect. He told me that he regarded these upstarts who were selling different kinds of hardware and different kinds of gas fixtures and radiators and boilers, as just so many nuisances. He said, "I never specify so and so or equal; I specify so and so, and I won't listen to anybody else; and at the end of the year I get my little check for my commission." Next day this architect was looking for another job. He does not know the reason to this day. He doesn't even suspect it and many a time no doubt he rails at the crank who fired him.

I might stop here and ruminate on life and hypocrisy and such things.

A great many men do certain things that they think are perfectly legitimate and honest for no other reason than that other people do them. It is the custom. Everybody does it, they say, if the thing is ever by any chance brought home to them. But it is next to impossible to do this—to make them see what they really are doing, especially when they need the money.

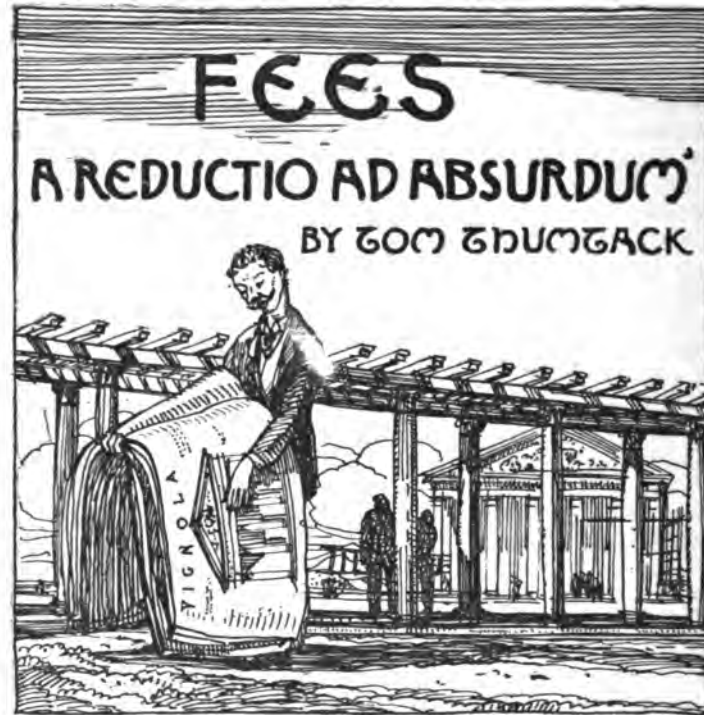
And that reminds me of a story of a lawyer. Permission was wanted from the owner of an unoccupied building to enter its basement to support the wall during the construction of a building alongside. The owner, a very pleasant chap, referred the party who wanted the permission to his lawyer, a gentleman by the name of Sheepskin, who, on being approached, was discovered to be very obdurate and full of threats and objections. Nothing doing.

The man who sought the permission then called on *his* lawyer and asked his advice: "You just leave that to me," said the counsellor, "I think I know what ails Mr. Sheepskin." Sure enough, he did. Fifty dollars was the amount Mr. Sheepskin had in mind when he made the objections and threatened the applicant.

I am under the impression that Mr. Sheepskin's conscience never troubled him even a little bit. Later I discovered that he was a political reformer—of the deepest dye too. Afterwards he held high office in the city where he dwelt.

Theodore Starrett.

ARCHITECT-TONICS



The shopkeeper who offered his wares below cost and claimed to make his profit by selling them in big quantities, had nothing on the architectural profession for business acumen, for our schedule of minimum charges is founded on just such logic. For example: We're paid on a percentage of the cost, but the capable architect is the one who keeps down the cost. Therefore, by doing his best he reduces his compensation. Likewise his big fees are on things where he does little work—on such things as factories—and he gets his little fees where he does a lot of work, like designing country houses. But the poor architect does factories and the good architect does country houses. The client wants to keep the cost down, and his architect must help him in this, but the less the cost of a particular job, the less is the compensation and the less is likely to be the beauty of its execution from which the architect obtains his reputation.

It is obvious that the architect's fee should increase, not decrease, with any legitimate reduction in the cost of the work, because it ought to be true that the owner and his agent gain or lose together. The

only reason that I have been able to find for the present illogical scheme is that you have got to have a scheme. It is like Adam's lucid reason for naming one of the animals. "It jumps like a frog, it looks like a frog, so I'll call it a frog." It is a scheme which goes along the line of least resistance, for the most obvious thing was eagerly seized upon as something to which to hitch a fee. It would have been just as logical to hitch the fees to the owner's bank roll or the amount he gave to charity. The business-like basis is clearly the cost to the architect of getting out the work plus a reasonable profit. The cost to the architect bears little relation to the cost to the owner of the job itself. I will illustrate this by a curious coincidence in my practice.

I received a letter from a prospective client asking for my charges on a library which he was going to add to his house. No description of library or house was given; and my answer, as would have been yours, was the sending to him of the Institute schedule of minimum charges which were here interpreted to be those which apply to alteration work. A contract was accordingly entered into at ten per cent. The work consisted of duplicating a wing of the beautiful limestone building which was his house, and putting therein a library with costly book-stacks and marble floor on the first story and above it a picture gallery and music room, into which were built Italian marbles which the owner had collected; and a big pipe organ. He cheerfully paid me the tithe of the cost for my part of the joyful job of construction with few drawings and competent builders enthusiastic because this simple, costly edifice was built by them on a percentage basis.

Another client had seen the library addition and wrote in for my terms. In answer I sent him the same schedule of minimum charges and found that the work was to be an isolated building at the end of a pergola leading from the owner's study in the house. This, of course, was a six per cent. job and a contract with this owner was accordingly drawn. In place of Mr. Stone's twenty thousand volumes, this was to accommodate only half the number. The house was an elaborately-designed piece of patterned brickwork and the library was also to be of brick. We will call the owner Mr. Brick. It was his idea, and a good one, to have me design a brick interior for the library as well. He had no contribution as had the collector, but had very pronounced opinions on such matters as the woodwork and the timbered roof. He was, moreover, a vacillating, critical and captious man. He was also a shrewd bargainer and got a cut-throat contract on the work.

This operation took more time to execute than the addition for Mr. Stone. It required five times the number of drawings, twice the number of visits of inspection, and constant wrangling with a too-low contractor. It cost my office three times what the Stone job did and ate up more than my entire commission; but the building cost the owner hardly as much as were my fees on the other operation. I got four jobs from enthusiastic admirers of the Stone collection of Italian marbles and not one from the less prominent friends of Mr. Brick,

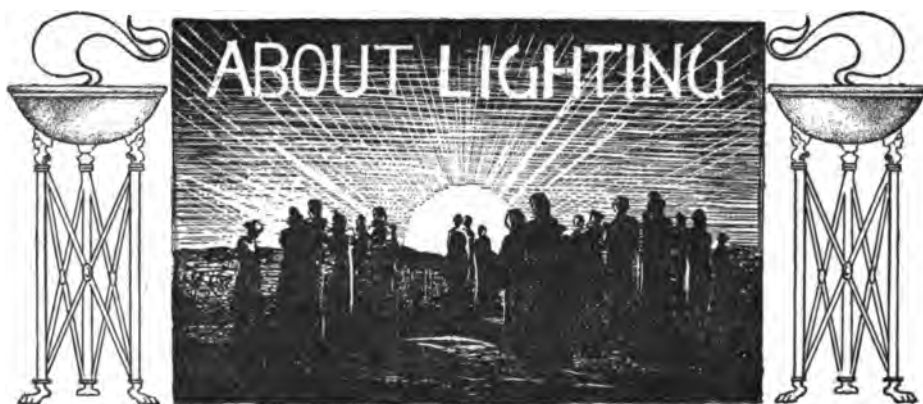
and Mr. Brick himself turned on me all the ill-feeling engendered by his troubles with his builder. Yet both operations were carried on strictly according to the schedule of minimum charges. Extreme cases, you say, but just look at your books, if you keep books, and you'll find the same kinds of extremes and you'll find also that they meet in every year you've been in business.

I'll tell you a little story. His farmer neighbor stopped one day to chat with The Palmer about his pigs. "I want teu know now, The, why 'tis you raised sich a power of pigs, and sot out sich a trifle of taters." "Wal, Zeke, it's like this; the pig crop sells the best, and besides I'd have to plant and tend the taters, but nater and the sow does most of that for pigs. But I've noticed and have been ameaning to ast you about it tew, knowin' what I'm tellin' you about pigs and taters, why be it that you set sich store by taters?" "Wal, I don't hanker arter pork, and I'm jest a leetle partial to taters," answered Zeke; "and I allow that's ben about my main idee."

Whenever I've told my story of the two libraries to business men they always ask me the same question. "Since your charges for everything are practically fixed by your minimum schedule and you make money on lofts and factories and big simple things like them and lose it on country work and brick-patterned libraries, why not build factories only? If nature helps you with the factories and you have to tend the libraries yourself why not take a tip from nature?" And I answer in the words of Zeke, "I'm jest a leetle partial to Art and I allow that's ben about my main idee."

I've illustrated the illogical basis of architectural fees, I've stated a better business basis, and I've told you a little story to show you why we often work for no money consideration. I am too poor a business man to show you how to correct your charges according to your cost. Who will be the prophet to lead architects to better profits?





IN THE GLARE

Architecture, decoration, or everything, must be *seen* to be appreciated. Then why all this talk about "glare" and the injurious effects of glaring bulbs on the eye? Do not these learned M.D.'s, who are so disturbed by our glaring lights, know that Heaven has sent us (by the grace of commercialism) sight-balm, in the form of these inverted bowls, or what-not, modestly hiding their own light, that ours may so shine? Does not each manufacturer of these luminous ceiling ornaments modestly admit that *he* has solved the problem of eliminating glare, and that *his* product is *the* only one? Most assuredly. Well then; either the architect really possesses a remarkable sense of humor, or else,—but why not conduct a preliminary diagnosis for the benefit of our afflicted client,—the general public—before recommending "patent medicines"? Perhaps the old-fashioned remedies will effect a painless cure,—not worse than the disease. To begin with, there are just two kinds of people in the world,—with brains and without, including architects and —, but no, the other half shall be nameless, or else their sins shall find them out.

The Class A kind (note how Destiny and Architecture go hand in hand with "capitals" and "A's") usually have a batting average slightly over 400, and take a good-sized grain of salt (weighing about a ton), with everything that anyone tries to "hand" them. The other class (they don't deserve a capital, because they're at the wrong end of the column) do the Jonah act regularly with every unpalatable piece of "bunk" which can be swallowed, although Fletcher would groan inwardly over their lack of technique. Humans of the Class A variety are beginning to realize that artificial light, in the form of the glaring exposed bulbs which dazzle the eye on all sides, is connected in some way with their nervousness, headache and eye-pain. In other words they are beginning to attribute some of these "effects" to the proper, or more properly speaking, "improper" cause.

Here are the facts in a nutshell, divested of professional theory and piffle. Nature has done her best to make the organs of a human being fool-proof. That is, proof against anything but the abusive practice of fools. The stomach will stand a great deal of abuse, but it can't get used to cyanide of potassium or carbolic acid. Neither can the human eye get used to glaring electric bulbs which exceed Nature's danger limit

several hundred times. When the stomach is abused the eyes show it by their blood-shot appearance on the "morning after." Headache is another aftermath. In the same way stomach trouble and headache can be caused by eye-abuse. Even acute indigestion, insomnia, and that condition known as "grouch" and "the blues" will result from exposing the eyes to these glaring electric bulbs which are growing more glaring and more dangerous with each improvement which concentrates the dazzling light giving element.

No, reader, this is not an introductory preamble to be followed by an effusive eulogy on indirect-lighting or concealment of source.

Indirect lighting, like any other application of artificial light, has its field of usefulness, but it is not unlimited. Wherever the architect takes hold of the lighting problem, about *once* in every 10,000 applications, we find lighting which if anything is visually safe. Glaring spots of light blot out pictorial expression, just as splashes of white paint would destroy the effect of any fine painting. The architect knows this, but he is so beset and hounded by lighting salesmen, and so swamped and flooded with lighting literature, and so obsessed with millions of other annoyances that the *big* "little" detail of lighting seldom gets the personal attention it deserves. Said a Jersey City architect who lighted a High School so that it is a menace to the eyesight of every student, "I suppose it is bad, but the authorities (politicians and board of education) want a lot of glare, or they don't think they're getting their money's worth." This allusion refers of course to conditions which could, and can be improved by the architect himself, and such cases are by no means restricted to school buildings. The bigger the undertaking the more miserable the lighting as a rule, and it is apropos to add that the new station of the New York Central Railroad, with its crude exposure of glaring bulbs in the approaches is no exception, excepting as a tribute to the stupidity of the illuminating engineer, and his ignorance of even the fundamental principles of physiologic lighting.

But how about the condition which cannot be regulated by the architect? Millions of people ride in the subway and suburban trains, twice daily. The "uneconomic" electric bulbs of the carbon type, have been replaced by "high efficiency" mazda lamps, "giving three times the light" (according to advertisements in the 5 cent weeklies) but with *two hundred times the glare!* (not mentioned in advertisements). These lamps are so glaring and dangerous to the eye that their exposure in the form of bare bulbs should be prohibited by law. Every architect is interested in getting facts, free from the graceful coloring of those subsidized writers who abound so plentifully nowadays and whose writings are a part of the advertising section. The question is one of *Eyesight vs. Glaring Lights*, and the issue is the eyesight of the next generation. In future issues of this magazine I will review the evidence in the case, and give you some inside facts about lighting, which should be made public.

F. LAURENT GODINEZ,
Contributing Editor on Lighting.

NEW POST OFFICE, WASHINGTON, D. C.

GRAHAM, BURNHAM & CO., Architects

OSCAR WENDEROTH, Supervising Architect

ADJOINING the Washington Union Station on the northwest is the new post office building for the city of Washington. The building fronts on Massachusetts Avenue and on North Capitol Street. It is connected with the Union Station by a passageway, but in other respects is an entirely separate building. Along Massachusetts Avenue it has an imposing colonnade with pavilions at either end which form the entrances. On either side facing the station and North Capitol Street are series of arched window openings along the first story which give values of light and shade to balance the effect of the colonnade on the front. As the ground is sloping, there is an exposed basement story on North Capitol Street, but in effect the building is of three story height to the cornice course which runs completely around the facades. Above there is an attic story and a slightly pitched copper roof.

Within, the public corridor runs the full length of the Massachusetts Avenue front, between the two entrance pavilions. This is beautifully finished in marble with metal work in bronze. The stamp window screens are of marble and bronze, and the openings above are glazed with great panes of plate glass, which separate the corridor from the working space within. Marble tables are provided for convenience, and the bulletin and announcement boards are in handsome bronze frames. Illumination is provided by ornamental bronze chandeliers, and from floor standards along the side walls. The elevators to the upper floors are approached from the vestibules at either end.

The builders of the Washington Post Office were John Gill and Sons; the W.

G. Cornell Company held the contract for plumbing, heating and lighting. The electrical contractors were the Carroll Electric Company, and the painting contractor, the Barker Painting Company. Hygienic kalsomine made by the Adams and Elting Company was used. The marble used is Tavernelle and comes from the quarries at Vicenza, Italy, which is a small town located near the larger town of Breccia. George W. Smith and Company, Inc., did the interior woodwork. The bronze work was executed by the Gorham Company and the lighting fixtures were supplied by the Sterling Bronze Company. The screen reflectors for lighting the counters were made by the Sunlight Reflector Company. The vaults were made by the Diebold Safe and Lock Company, and the building was equipped with rolling steel doors made by the James G. Wilson Mfg. Company. The elevators were put in by the Otis Elevator Company.

The clock system was installed by the Magneta Company and is operated from a Magneta master clock, which has a capacity of 100 clocks with 12-inch dials. In the system in the post office there are fifty-eight 12-inch single dial clocks, two 12-inch double dial clocks, one 16-inch single dial and one double dial, two large marble dial clocks at either end of the main corridor, and two special metal dial clocks in the post master's office.

The master clock is self-winding, wound once a day by an electric motor. There are no contacts in the master clock and the secondary clocks are all operated by an inductor which generates the necessary current and which is connected directly to the clock circuits.



NEW U. S. POST OFFICE BUILDING, WASHINGTON, D. C.

Builders: John Gill & Sons.



NEW U. S. POST OFFICE BUILDING, WASHINGTON, D. C.

Graham, Burnham & Co., Architects.
Oscar Wenderoth, Supervising Architect.

Contractors for Plumbing, Heating & Lighting: W. G. Cornell Co.
Electrical Contractors: The Carroll Electric Co.
Bronze Work: The Gorham Co.
Rolling Steel Doors: Jas. G. Wilson Mfg. Co.
American Steel Pulleys,
Otis Elevators.



PUBLIC CORRIDORS OF THE POST OFFICE BUILDING.

Clock System: The Magneta Co.
 Interior Work: George W. Smith & Co., Inc.
 Star Expansion Bolts.
 Cutler Mail Chutes.
 City Elevators.
 Chicago Spring Bolts.



MAIN PUBLIC CORRIDOR, POST OFFICE BUILDING.

Builders: John Gill & Sons.
 Bronze Work: The Gorham Co.
 Lighting Fixtures: Sterling Bronze Co.
 Painting and Decorating: The Barker Painting Co.
 Bronze Screen Reflectors: The Sunlight Reflector Co.
 Vaults: Diebold Safe & Lock Co.

Graham, Burnham & Co., Architects.
 Oscar Wenderoth, Supervising Architect.



BRONZE BULLETIN FRAME AND TABLE IN LOBBY, NEW POST OFFICE BUILDING.

Graham, Burnham & Co., Architects.
Oscar Wenderoth, Supervising Architect.



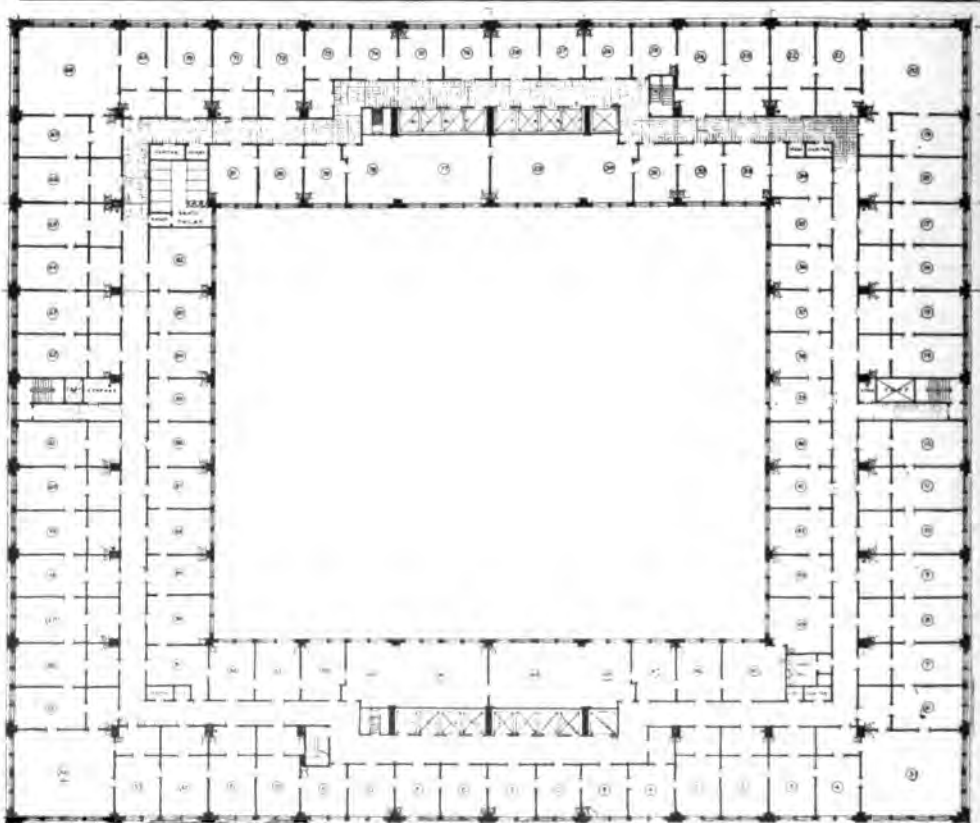
Directory: U. S. Changeable Sign Co.
Interior Woodwork: George W. Smith & Co., Inc.
Bronze Work: The Gorham Co.
Evans' "Crescent" Expansion Bolts.



BRONZE AND MARBLE RAIL AND SCREEN, POST OFFICE BUILDING, WASHINGTON, D. C.
 Builders: John Gill & Sons.
 Clock Systems: The Magneta Co.
 Painting & Decorating: The Barker Painting Co.
 Adams & Elting Co.'s Hygienic Kalsomine Used.
 Bronze Work: The Gorham Co.
 Lighting Fixtures: Sterling Bronze Co.

Graham, Burnham & Co., Architects.
 Oscar Wenderoth, Supervising Architect.

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Illustrations by Courtesy of "Safety Engineering."

THE COURT WITH 1000 WINDOWS OF WIRE GLASS IN METAL FRAMES. PLAN TYPICAL
OF UPPER STORIES.

Metal Windows: J. F. Ruth.



PERSPECTIVE OF THE RAILWAY EXCHANGE BUILDING, ST. LOUIS, MO.

Lighting Fixtures: Shiras-Chassaing Electric & Mfg. Co. Mauran, Russell & Crowell, Architects.
 Metal Windows: J. F. Ruth.
 Cutler Mail Chutes.
 Otis Elevators.



Store Entrance to Barr's.

Mauran, Russell & Crowell, Architects.



East on Olive Street.

RAILWAY EXCHANGE BUILDING, ST. LOUIS, MO.



Entrance to Offices.

Lighting Fixtures: Shiras-Channing Electric & Mfg. Co.
Evans' "Crescent" Expansion Bolts.



BUILDING FOR THE NORTHWESTERN MUTUAL LIFE INSURANCE CO., MILWAUKEE, WIS.
Builders: George A. Fuller Co.
Terra Cotta: Federal Terra Cotta Co.
Marshall & Fox, Architects.



INTERIOR COURT OF THE NORTHWESTERN MUTUAL LIFE INSURANCE CO.'S BUILDING.
Builders: George A. Fuller Co.
Terra Cotta: Federal Terra Cotta Co.

THE THEATRE

By EDWARD ROCHIE HARDY

FROM a fire prevention standpoint, the theatre presents a problem that has taxed the ingenuity of the best minds in the business. One does not associate with the theatre, disaster. In fact, its chief function being to furnish entertainment, makes the thought of disaster generally a remote one, especially to those who attend. It happens, however, that the statistics show that within a respectable period of time there have been no less than one thousand theatre fires. In all of these there has resulted quite a large loss of life. Some of these fires are landmarks, in that each one has marked increased efforts to lessen the risk from fire. On the European continent, the famous fire, I believe in the early seventies, at the Ring Theatre in Vienna, where the loss of lives was so great as to attract world-wide attention, lead to the minute study of the action of heat and flame in such types of structures, and marked improvements in the design were the result.

In the United States three fires stand out very prominently, namely: one at Richmond, Va., the latter part of the eighteenth century; one at Brooklyn, N. Y., and the famous one at Chicago, the Iroquois Theatre. The latter, in point of numbers, was probably the most disastrous theatre fire in the record of a thousand such fires.

The Chicago fire had a greater effect probably in stimulating the purpose of all who came in contact with the problem to demand and secure in the plan, erection and conduct of amusement places a degree of care and safety which, up to that time, may have been unknown. One person who lost some relatives in the Chicago fire contributed a fund to be used by J. R. Freeman, the noted engineer, for the purpose of making a special study of the fire hazard in theatres.

In many respects, the general plan of the theatre, as it may be called, has not been changed from the days of the Greek and Roman theatres, especially the outdoor theatres. The element of scenery which has been introduced into the modern theatre did not exist in those days, but the division into two parts, that is one for the audience and one for the stage, is found in the very earliest types of such structures.

The modern theatre is divided structurally into three divisions. The entrance building or lobby, the auditorium and the stage.

Nearly all the fires which have occurred have originated on the stage, and the large opening at the proscenium arch protected only by the flimsy canvas curtain, in most cases, enabled the fire to at once fill the auditorium. The loss of the lives in most cases was due not to burning but stifling. The normal course of the fire, heat and smoke is to come out under the arch and curl upward towards the gallery. In doing this it obeys the simple law that the lighter air rises. This was true in Chicago. The great majority of the lives were lost in the balconies or upper floors. Those on the first floor had two advantages in escaping. There were no stairs to descend and the air was somewhat better at the lower level.

The most structurally, which is to be secured in such properties are these, namely: (a) Building—brick or stone. (b) Walls—standard. (c) Proscenium wall, coming out as it does between the stage and auditorium, should have, except for the curtain, as few openings as possible. These should be protected by approved fire doors. There should be at the curtain opening an approved steel curtain with an automatic water curtain behind this. (d) Roof—standard. (e) Cornice—not of wood. (f) Heating—by steam. (g) Lighting—approved electric. (h) Fire protection—minimum. Two standpipes, one at each side of the proscenium arch with standpipe hose and another standpipe suitably equipped in the lobby. (i) Further protection—barrels filled with water, also pails beside the barrels, fire extinguishers, axes and hooks in each gallery, on each side of the stage and in the work rooms. (j) Further—watch service should be maintained. (k) Automatic sprinklers over the stage portion. (l) Any heating of glue, etc., to be by steam. (m) Carpenter shop cut off. (n) Dressing rooms—in a separate building cut off. (o) If scenery be stored it should be in a separate brick building properly cut off. The same should be true of the property room. (p) Smoking not to be permitted, except as necessary in a play. (q) Almost needless to say, good housekeeping is demanded. This would include the making, outside of the theatre, of costumes, etc.

Strange as it may seem, it is not an easy matter to secure standard conditions for these properties, especially if we get away

from the theatre centers, but great progress has been made since 1903, and it is not too much to hope that the future will be even better than the past.

It is now an accepted principle that over the entire stage portion there must be adequate provision so that if a fire starts an ample skylight will immediately give way and permit the flames to pass out of the building. At the same time, a fireproof curtain

will drop at the proscenium arch and thus prevent the smoke and flame and heat from immediately filling the auditorium. If these precautions are taken and adequate facilities for exit are provided there is no reason why the audience may not be able to leave the theatre without undue haste and with absolute safety.

Let us hope that we have had the last theatre disaster.

RAILWAY EXCHANGE BUILDING, ST. LOUIS, MO.

MAURAN, RUSSELL & CROWELL, Architects.

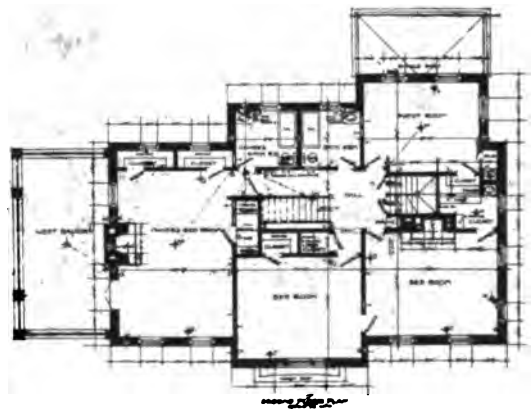
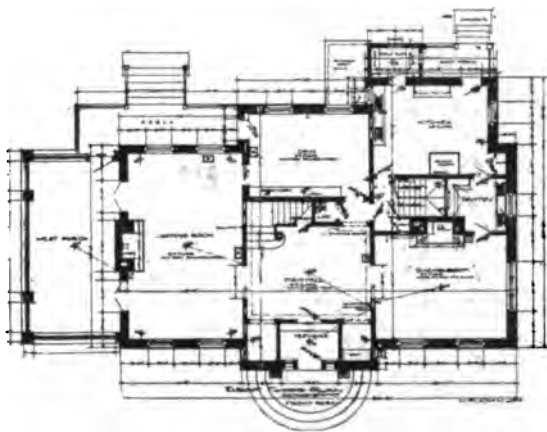
(See Illustrations on pages 430-432.)

THE Railway Exchange Building which covers an entire block between Olive, Locust, Sixth and Seventh Streets in the heart of St. Louis' business district, has fronts of 271 feet one way and 228 feet the other, and covers an approximate ground area of 62,000 square feet. From the basement to the top the building is 308 feet 6 inches high, containing 21 stories. The foundations are of the caisson type, 110 in number, each 6 feet 6 inches in diameter extending to bed rock at a depth of approximately 70 feet below the street level. In this building there are 30 acres of floor space and there are 105 offices to each floor. There are two entrances to the offices, each 56 feet in width, one on Olive Street and the other on Locust Street. These approach two batteries of nine Otis elevators each. The central court is 125 feet by 160 feet, and contains 1,000 windows.

To build this structure, the ordinance restricting the height of buildings in St. Louis was set aside and to fulfill the requirements of the Fire-Prevention Bureau

and Commissioner of Public Buildings of St. Louis some unusual provisions were made. The structural materials are non-combustible throughout, and though an office building for the larger part, it is sprinklered throughout. The plan provides for the complete isolation of one floor from another by means of fireproof enclosures about the stairs and elevators, separating these openings from the stories. Moreover, to provide against the risk of fire spreading from floor to floor by means of the windows, all the street and court windows, 4,200 in number, above the second floor are double hung, hollow metal sash set with polished wire glass. These windows which are provided with a special weather strip embodied in their construction, were made by J. F. Ruth.

Barr's department store occupies the lower stories. In connection with this store there are 20 more Otis elevators and 4 Otis escalators. There is a total candle power in incandescent lamps of 2,180,000. The lighting fixtures were made by the Shiras-Chassaing Electric and Mfg. Co.



HOME OF MR. JOHN W. DICKINSON, SCARSDALE, N. Y.

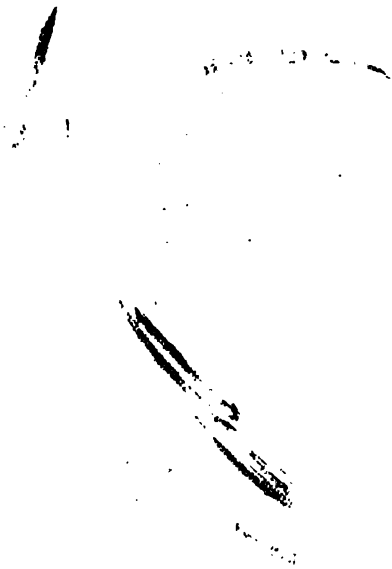
Upjohn and Conable, Architects.



HOME OF MR. JOHN W. DICKINSON, SCARSDALE, N. Y.

Upjohn and Conable, Architects.

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THE ALTMAN STORES, NEW YORK

TROWBRIDGE & LIVINGSTON, Architects

THE recently completed addition to the store of B. Altman and Company, now finished, rounds out the block extending between Fifth and Madison Avenues and 34th and 35th Streets. The original building of eight stories finished in limestone has been increased to 13 stories on the Madison Avenue side. This frontage is finished in white glazed brick with the exception of the two corner pavilions which are of limestone to the eighth story cornice. At the centre of the Madison Avenue front there is an entrance suitable for an automobile approach as it is provided with a marquise extending to the curb.

With the completion and opening of this new wing, there was considerable rearrangement of the various departments of the store. As formerly, the first five stories are devoted to retail sales and display rooms. The main floor has a large department for men's furnishings and many smaller departments which require a relatively small area for each one. On the second floor are the departments for children's, girl's and misses' wearing apparel, and for boys' and young men's clothing, with several other special lines of wearing apparel. The third floor is devoted principally to the large lines of women's clothing, furs and millinery. This floor is very beautifully finished with display cases and fittings especially adapted for the best display of handsome garments. The surroundings have been designed with great care and the comfort of the patron equally considered.

The fourth floor affords space for the Altman studios of interior decoration and all the allied lines such as lace curtains, upholstery, bric-a-brac, and other appointments.

On the fifth floor are the display rooms for rugs and carpets, including the Oriental and antique departments. Here are also the women's writing and rest rooms, the public telephone room, the information bureau, and the executive and general offices. In the offices there are three

rooms which are replicas of rooms in Mr. Altman's home. When his Fifth Avenue residence was dismantled, the carved woodwork and panelling was removed and was reset up in the store. Mr. Altman's library is now the president's room. The dining room is the board room, and the anteroom approaching these is a reconstruction of Mr. Altman's famous Renaissance room.

The basement of the building is the shipping or delivery department. To this point all packages are delivered by means of spiral chutes, elevators and belt conveyors. Here the packing is done and other conveyors take the merchandise to delivery bins, whence they are placed upon the wagons going out on the various routes.

In the sub-basement there is an interesting power plant. There are ten boilers with a capacity of 3,000 horse-power, coal pockets with a capacity of 2,000 tons, and an engine room with a total capacity of 3,600 horse power. The electrical generators have a total capacity of 2,400 kilowatts. A large amount of power is also consumed by the ventilating and heating system. There are 39 Otis elevators in the enlarged building. 37 of these are passenger elevators.

The upper floors of the building provide storage space for reserve merchandise and for work rooms. The mail order department is on the 8th floor, and there also is a very large storage vault for furs, rugs, and other goods, for which an artificial refrigerating plant is provided. The building has an automatic sprinkler system throughout, and has full fire protection meeting the customary requirements.

The welfare department which now occupies the upper floors of the Madison Avenue side, embraces a large recreation room for female employees on the 11th floor. The 12th floor is occupied by the employees' lunch rooms where food is served to employees at cost prices. The top floor contains an emergency hospital with constant medical attendance, and



STORE OF B. ALTMAN & CO., FIFTH AVENUE AND 34TH AND 35TH STREETS, NEW YORK.
Barrett Specification Materials, Waterproofing and Roofing.
Cutler Mail Chutes.
Otis Elevators.
Grant Overhead Pulleys.

Trowbridge & Livingston, Architects.



THE NEW WING ON MADISON AVENUE FROM 34TH TO 35TH STREETS.

Builders: Marc Eidlitz Co.
 Plumbing Contractor: James McCullagh, Inc.
 Metal Windows: M. F. Westergren, Inc.
 Rolling Bronze Shutters: Jas. G. Wilson Mfg. Co.
 Consulting Engineer, Electrical and Mechanical, Percival Robert Moses.
 Trowbridge & Livingston, Architects.



THE MAIN STORY.

Case Work and Fixture Equipment: George W. Smith & Co., Inc.

men's and women's wards with seven beds. The roof of this section of the building also contains rest rooms and an open air roof garden and promenade.

Trowbridge and Livingston were the architects for the Altman store, on both the original building and the recently completed addition. Mr. Percival Robert Moses was the consulting engineer for the complete electrical and mechanical equipment of the building. The builders were the Marc Fidlitz Company. The metal windows and metal trim and doors were manufactured by M. F. Westergren, Inc. The tile work of the restaurants and switchboard was done by the William H. Jackson Company, and the switchboard itself was built by the Metropolitan Electric Mfg. Co. The plastering con-

tract was carried out by Davis Brown, Inc., and the painting and decorating by the Barker Painting Company. The extensive casework and fixture equipment of the building was put in by George W. Smith and Company, Inc., and the oak flooring largely used was manufactured by the Nichols and Cox Lumber Company. The plumbing contract which was an extensive one including all the plumbing fixtures in the welfare departments, employees' and public toilets, and those in connection with the kitchen equipment, was carried out by James McCullagh, Inc., a very well executed and satisfactory job. The slate was furnished by the Penn Slate Company. The clock system was installed by the E. Howard Clock Co.



SECOND STORY. CHILDREN'S CLOTHING.



THIRD STORY. WOMEN'S SUITS.

Builders: Marc Eidlitz Co.
 Metal Trim and Doors: M. F. Westergren, Inc.
 Oak Flooring: Nichols & Cox Lumber Co.
 Case Work and Fixtures: Geo. W. Smith & Co., Inc.
 Painting and Decorating: The Barker Painting Co.
 Plastering Contractor: Davis Brown, Inc.

Trowbridge & Livingston, Architects.
 Consulting Engineer, Electrical and Mechanical,
 Percival Robert Moses.



FOURTH STORY. ORNAMENTS.



FIFTH STORY. RUGS AND CARPETS.

Plumbing Contractor: James McCullagh, Inc.
Case Work and Fixtures: Geo. W. Smith & Co., Inc.
Oak Flooring: Nichols & Cox Lumber Co.
Painting and Decorating: The Barker Painting Co.
Plastering Contractor: Davis Brown, Inc.



THE EXECUTIVE OFFICES.

Metropolitan Detachable Flush Switches.
Clock System: The E. Howard Clock Co.

Trowbridge & Livingston, Architects.
Consulting Engineer, Electrical and Mechanical,
Percival Robert Moses.



LUNCH ROOM FOR EMPLOYEES IN 12TH STORY.
Tile: Wm. H. Jackson Co.



ELEVATOR ENCLOSURES IN THE OLD AND NEW PORTIONS



THE SWITCHBOARD.
Switchboard and Panel Boards: Metropolitan Electric Mfg. Co.



Plumbing Contractor: James McCullagh, Inc.
Slate: Penn Slate Co.
Otis Elevators.
Diamond Door Hangers.
Clock System: The E. Howard Clock Co.

THE HILL BUILDING, NEW YORK

GOLDWIN STARRETT & VAN VLECK, Architects

THE Hill Building, erected for the Hill Publishing Company, is located on Tenth Avenue at 36th Street. It is eleven stories high, and the exterior is finished in ivory-colored terra cotta, which frames the window areas. Apparently about three-fourths of the external surface is glass set in steel frames, which gives very light interiors.

The building was designed for a printer's building. The entire lay-out is planned to suit the needs of printers and to give accommodation much more suited for their work than can be obtained in the ordinary loft building. Throughout, the ceilings are very high. As mentioned before, the window area is large and the illumination of the floors excellent. To reduce the vibration of the building from the throbbing of presses, the floors are extra heavy, and the supporting columns are increased in weight proportionately. The floors are designed for a live load of

300 pounds per square foot on all floors. The floor beams are spaced 8 feet on centres, and the girders are doubled. The floor system consists of a hollow tile arch with a depth of 16 inches, over which there is a 6-inch layer of stone concrete. The result is a floor which is very nearly vibration-proof and sound-proof.

To reduce the freight handling to a minimum, there is a team entrance on 36th Street, with a loading platform 20 feet wide, directly before the elevators, so that there is one handling from the truck to the elevator, and another from the elevator to the floor. There is the same means of shipment for outgoing merchandise, and in addition, a spiral merchandise chute for smaller packages through which bundles, mail sacks, etc., can be shot to the street expeditiously.

As an even temperature and condition of humidity is a necessity for good work in the press room, hot water heating has



LOWER STORIES OF THE TENTH AVENUE FRONT.

Terra Cotta: N. Y. Architectural Terra Cotta Co.



THE HILL BUILDING, TENTH AVENUE AND 36TH STREET, NEW YORK.

Builders: Theodore Starrett Co.

Goldwin, Starrett & Van Vleck, Architects.

Corbin Hardware.

Otis Elevators.

Switchboard and Panel Boards: Metropolitan Electric Mfg. Co.

Terra Cotta: N. Y. Architectural Terra Cotta Co.

Loomis-Manning Filters.

Brooklyn Vault Lights.

Plumbing Contractor: W. G. Cornell Co.



GENERAL OFFICE OF THE HILL PUBLISHING CO. ON THE TOP FLOOR.
Metropolitan Detachable Flush Switches.
Chicago Spring Butts.
Hollow Metal Doors and Trim: Interior Metal Mfg. Co.

Goldwin Starrett & Van Vleck, Architects.



THE FINISH IS PLAIN. THE TRIM AND DOORS ARE ALL METAL.
 Peele (Patent) Elevator Doors. Made by Interior Metal Mfg. Co.

been employed in the building, the object being to regulate the heating as evenly as possible. There is also a large air washing and humidifying equipment which supplies 30 cubic feet of air per minute for each person on each floor. In connection with this ventilating system, there is an exhaust equipment on the roof. Naturally, for the efficient working of this equipment, all the windows must be kept closed so that no air can be drawn in from the street, accompanied by dirt and changed conditions of temperature and humidity.

The Hill Publishing Company occupies the upper floors of the building. Their main office is shown in one of the illustrations. This is a two-storied room with a mezzanine in part. It is rather handsomely finished, provided with a rubber tile floor and equipped throughout with metal furniture.

The building is as fire resistant as it can be made, in both the structure itself and in its equipment. It is provided with an automatic sprinkler equipment, alarm system and all similar provisions for the safety of its occupants as well as its contents. Seven of its eleven stories are intended to be rented.

This building was erected by the Theodore Starrett Company. The plumbing contract was held by the W. G. Cornell Company, and the exterior terra cotta was made by the New York Architectural Terra Cotta Company. The interior trim is of hollow metal. The doors are of the flush type, being formed of one sheet of steel for each side electrically welded, thus producing a special type of steel door in which there are no joints. This construc-

tion is especially adapted for closing openings in fire walls. The elevator doors are also of the flush type and are provided with peek holes closed with wire glass. The trim is also of hollow metal and is flush-finished without moldings. The doors to the freight elevators are the Peele Patent, and were made by the Interior Metal Manufacturing Company, as were all the other hollow metal doors and trim in the building. An interesting feature of the finish on the steel trim and also on the bronze entrance doors is that the treatment of the finishing removes oxidation, and the finish can be renewed without rebaking the enamel. This has economical advantages for the owner.



A spiral chute (Otis) making a turn to the story carries the mail sacks to the first story. There are also separate chutes from floor to floor.



BUILDING FOR THE NATIONAL CLOAK & SUIT CO., SEVENTH AVE. AND 24TH ST., NEW YORK.

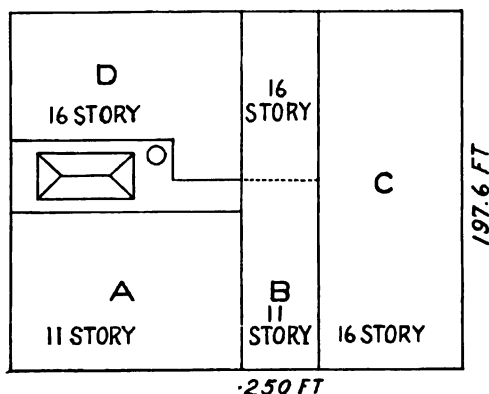
Builders: Bing & Bing Construction Co., Inc.
 Electricians: Oberg, Blumberg & Bleyer.
 Fireproof Doors: Reliance Fireproof Door Co.
 Painting and Decorating: The Barker Painting Co.
 Maple Flooring: The A. W. Burritt Co.
 Evans' "Crescent" Expansion Bolts.
 Otis Elevators.
 Rolling Steel Doors: Jas. G. Wilson Mfg. Co.
 Enameled Brick: American Enameled Brick & Tile Co.
 Chicago Spring Butts.

I. E. Ditmars, Architect.
 Weiskopf & Burroughs, Structural Engineers.
 M. C. Schwab, Mechanical Engineer.

NATIONAL CLOAK AND SUIT CO'S. BUILDING

The first building for the National Cloak and Suit Company known as "A" was built in 1907. Building "B," extending from 24th to 25th Streets, was built in 1910, and buildings "C" and "D" and a five story extension above building "B," on the 25th Street side, have just been completed. In the development of this scheme to the present building, which is practically one unit, with 15 acres of floor space, Mr. I. E. Ditmars studied the housing problem and Mr. Martin C. Schwab planned the mechanical and operating equipment. The building houses a mail order business and is specialized for that purpose.

In construction, it is a standard fireproof loft building completely sprinklered and protected from external hazard by wire glass windows in metal frames. Building "A" is provided with outside water curtains.



There are thirteen elevators approached from four street entrances with the largest freight elevators in building "D." The merchandise is delivered, opened, examined and sorted in building "D," then stored in a carefully organized system of bins or racks on the merchandise floors.

Building "C" has open uninterrupted floors as all elevators are in the other buildings. A good deal more than half of the space in buildings "A," "B" and "C" is used for the storage of stock.

The clerical departments for the most part are located in the 2nd, 4th and 5th stories, while the 3rd story, containing 38,000 square feet net of floor space, is entirely given up to employees for lunch, rest, recreation and smoking rooms, hospital and library. On the roof there is an open-air promenade and game space. The executive offices are on the eleventh floor of "B" and "C", and the advertising and merchandise buying departments are placed on the 16th floor of "C," so as to get the advantage of the best natural light.

The work of filling orders is systematized to reduce handling to the minimum. The departments are so located that there is continuous mechanical handling by conveyors of several types between them. The result is

that the time required for passing an order through the house has been cut two-thirds by the new system.

The idea sought is continuous operation of the business without delays or interruption. Everything is carried along in a stream as it were, and there is no congestion of orders or other papers or accumulation of merchandise at any point.

A mail order under normal conditions is filled and shipped within a few hours of receipt. Because of the vast quantity of orders a most elaborate checking system is necessary and the order must go through several clerical departments. This handling is all accomplished by continuous belt conveyors between departments until the order is finally dispatched through a pneumatic tube system to the proper merchandise department, where the order is filed.

After each merchandise department fills and checks its part of an order, it is boxed and sent through a spiral chute to a department on the 2nd story of "B," where the complete order is assembled, and then forwarded to the packing department, which is on the 1st floor "C" building. Here the order is finally checked, packed and made ready for shipment. This department is probably, more than any other, designed with a view to having the work done mechanically, and with the exception of the actual packing, very little work is done by hand. Every operation involving carriage is done by belt conveyor and all employees work at fixed stations.

The "National" has its own electric power plant. The elevators are all plungers. In the basement of the building "C," there is an automatic box-making plant, which delivers by a belt conveyor to the packing-room in the story above where a constant supply is maintained in racks above the packing tables, so that they are always handy to the packer.

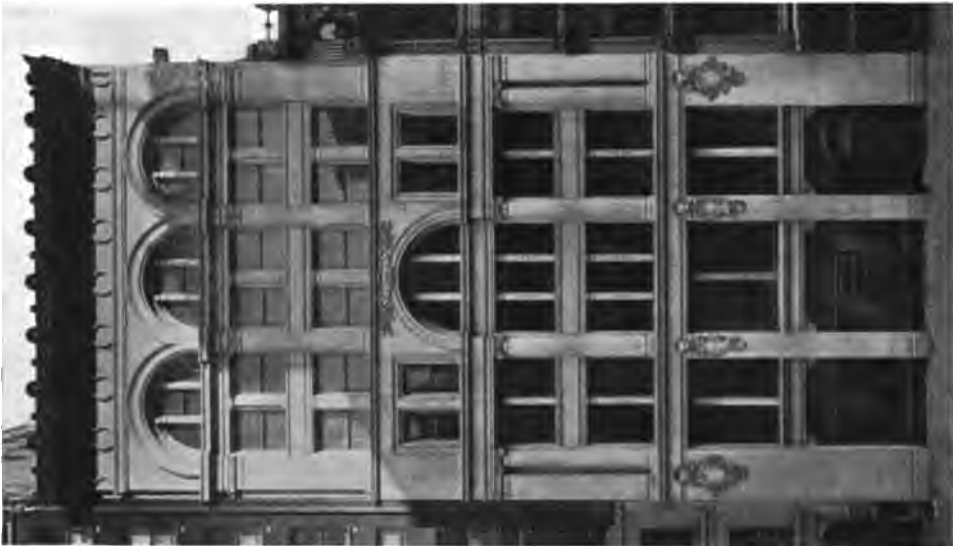
The disposal of waste in the building is provided for by means of waste chutes opening from every floor which convey the rubbish directly to the sub-basement where it is first sorted and the final waste incinerated. All paper and waste that has a market value is baled by means of hydraulic presses for disposal.

The builders were the Bing and Bing Construction Company, Inc. The electricians were Oberg, Blumberg and Bleyer, and the elevator and chute equipment is Otis. The American Enameled Brick and Tile Company supplied the enameled brick. There are 715,000 feet of 1½-inch maple flooring used in the building which was supplied by the A. W. Burritt Company. The painting and decorating of the building was done by the Barker Painting Company. The Reliance Fireproof Door Company supplied fireproof doors and trim, and the rolling steel doors were supplied by James G. Wilson Mfg. Co.

In the power plant are Babcock & Wilcox boilers, Providence engines and Crocker-Wheeler generators.



BUILDING EXTENDING THROUGH FROM 47 WEST 23RD ST. TO 24-28 WEST 24TH ST., NEW YORK.
H. J. Hardenbergh, Architect.



BUILDER: ERASME VAN HOUTEN.
BOMMER SPRING HINGES.
OTIS ELEVATORS.



Ornamental and Plain Plastering: Conroy Bros., Inc.
Chicago Spring Butts,
Star Expansion Bolts,
Barrett Roofing Materials Used.

Wm. H. McElfatrick, Architect.

ARCHITECTURE AND BUILDING

A Magazine Devoted to Contemporary Architectural Construction

WILLIAM P. COMSTOCK
Managing Editor

THEODORE STARRETT
Contributing Editor

Volume XLVI

DECEMBER, 1914

Number 12

There is a story in the November number of the Real Estate Magazine of an owner who employed a firm of architects to build a skyscraper hotel. The architects told him that the work would cost 25 cents per cubic foot; when it was finished it had cost 42 cents, an increase of 68 per cent. The experience evidently had a saddening—if not indeed chastening—effect on the owner (which seems like a cruel way to characterize it) and it caused him to study the law with relation to architects and their duties and responsibilities, all of which he has very clearly laid down in his story.

It seems a pity the gentleman did not put his mind on the subject of architects and their duties before he employed one and before he obligated himself to spend possibly three-quarters of a million of dollars where he had expected to spend less than half a million.

The story is an old one. I could give two or three out of my own experience alongside of which Mr. Kruse's is a mere bagatelle. I could give dozens out of the experience of others that I know of; I could tell of architects—perhaps I should rather say, an architect—who had made it a business to coax hotel men and their friends in a half dozen cities into spending sums vastly in excess of their expectations on buildings whose rentals based on final cost were so ruinous as compared to the ability of the landlord that almost invariably the leases had to be revised before occupancy was begun—to the discomfiture and disappointment of the investors. One architect who did this kind of business, it afterward transpired, moved from each city in which he had built a hotel, not because he was seeking new worlds to conquer, but because he found himself so unpopular where he was known that he had to try each successive venture among strangers.

After studying the law Mr. Kruse makes some very good recommendations as to how to employ architects another time. He also presents an alternative of eliminating the architect entirely and of employing a construction company who would furnish "architecture" along with the rest of the goods.

I have to laugh in my sleeve when I see stories like Mr. Kruse's because I know something of the other side of the shield. Pretty nearly all these cases of disappointed owners are repetitions of the old story of the biter bitten. Cupidity is at the bottom of almost every one of them. There is not an architect of standing who would not obtain a reliable estimate by a reputable and responsible concern that would guard the owners against such disappointments as those that I have spoken of. But the trouble is that the owners try to beat the game. They think the builders are all right, but want to make too much money; they will act as builders themselves, for every man knows all about building; it is the one trade that does not have to be learned.

If they pay an architect the full fee, of course (!) they do not need a builder. Besides, some architects are willing to cut the fee on a large job.

But the architect's fee is the smallest part of it and in this discussion it can be disregarded.

Here's the way one of those hotel schemes that I happen to know about went through. The owner was willing to build, but he had some experience with the uncertainties of contracting in the ordinary way. A builder offered to construct a hotel at a guaranteed upset price, the size being known and the general layout—number of elevators, number of rooms, number of bathrooms—being determined. The building was to be finished like a certain other one whose details in all respects were to be used as a standard of comparison. The architect, who undertook nothing except to interpret the owner's ideas and to see that they were embodied in the finished building, had made sketch plans. When I say that the architect undertook nothing but to produce the desired building, I mean that he assumed no responsibility for the cost—he was not asked any questions about the cost. The builder supplied that part of the information. The architect and the builder knew each other and each knew the nature of the undertaking sufficiently well to be satisfied that it was possible and that the price was not too low nor yet too high. The tenant, who had been in the background all the time, now came forward and signed a lease based on a certain value of the ground and on whatever the building might cost. He left the building end of it open because he was so very shrewd. He knew the building business, as they all do, better than any builder; he knew, too, what rascals builders are and what enormous sums they make. He was as sure as that the sun would rise that he could make the architect parcel the building out to the different trades and save at least 25 per cent. on the builder's offer. To protect himself against being compelled to pay an exorbitant rent on account of the builder's profit he stipulated in his lease that no contract should be made except upon his written approval.

The continuation of this interesting narrative will have to go over to the next number of this magazine.

Theodore Starrett.

ARCHITECT-TONICS



I'm an Architect. I work like an Architect. I look like an Architect. I think like an Architect. Since I was big enough to be anything I've been an Architect. Little Tommie Thumtack was an architect's office boy. Young Thumtack was an architectural draftsman. Mr. Thumtack had charge of another architect's business and now old man Thumtack is a regular full-fledged, dyed-in-the-wool, old-line architect. When I'm in the office I think of houses, when I eat lunch I talk competitions, when I go home at night I drink architectonics. I have the point of view of an architect and dream of castles in Spain. In this I'm like all of my fellows.

The people I work for are Clients. They live, breath, and have their being as Clients; they make their money as Clients, and spend it as Clients; they are bankers, and bakers, and lawyers, and grocers, and musicians, and mothers, and daughters, and lovers, but always they're Clients. Between their ways and my ways there is a great gulf fixed. You all know how little we architects understand you Clients. Did any one of you ever try to understand us Architects? I can't understand you, can you understand me? Or easier, if I were in your place could I understand myself? I'm going to try to be you and deal with myself. I'm going to put myself in your place and be

Tom Thumtack, Client, and then I'm going to hire an Architect and build a house. That's quite a new idea, isn't it?

I don't want to try to leap the great gulf fixed between Tom Thumtack, Architect, and Tom Thumtack, Client, at a sudden, nerve-wrenching bound. I'll slip softly down one side, cross on the stepping-stones, and then clamber slowly up to the opposite summit. I'll do it by means of a legacy. Old Uncle Joshua Thumtack, way-off in Australia, has been planted under the veldt, and his lawyer advertises for one Thomas Thumtack, Esquire, and I answer. You've often read of similar meetings in the chambers of English attorneys (or is it solicitors, I'm just a bit hazy as to which.) Anyway, I get thirty thousand pounds, nineteen shillings and sixpence less inheritance tax, and solicitors (or is it attorneys') fees, and I go home Tom Thumtack, Gentleman. Now, you must remember that I am no chicken (this in the good old sense which goes with gray hair and not lobsters or even their combination). I've lost some of my consuming desire to emulate Sir Christopher Wren and Donatello. And now I can't see a country house over that pile of pounds sterling. I can't fight for a fire-engine station with my feet all tangled up with those shillings and pence. So I sell the Thumtack business and buy a farm out on Long Island. There I live several years in comparative comfort till the Long Island Railroad and the Pennsylvania make a way-station of New York City and the bankers and brokers begin to give heed to the Christopher Columbus of Long Island real estate. Pioneers start a home for Independent Artists in the midst of the forest primeval of Forest Hills Gardens where the settlers build wickie-ups in the manner of the Early-to-bed Dutch. All the Miss Thumtacks want to go and do likewise.

Now, before I bought good old Thumtaxes farm, at my farewell dinner, tendered by the Society of Beauleg Architects, I had solemnly sworn after the champagne had given me courage, never to design, specify or inspect any mansion, cottage, pig-stye or other dwelling while my pile lasted. So when my wife and daughters insisted on a house for Thumtaxes farm my oath clasped hands with my laziness and required that I select an Architect. So I became Tom Thumtack, Client.

SELECTING THE ARCHITECT.

Tom Thumtack, Client, had a long conference with Tom Thumtack, ex-Architect, and decided that the selection of an Architect for Thumtaxes farmhouse must be a purely business proposition. T. T., Client, immediately excluded young Jack Handholder who used to keep me up too late at night entertaining my daughter Lilly. It also excluded Charlie Niblick who used regularly to take a fall out of me on the last few greens over at the Scotch and Rye Golf Club.

Mrs. T. T. had cut the very house out of English Country Life and she had measured the farm and could swear that it would all go on except maybe the last hundred feet of the servants' wing. (We

keep two competent maids every little while.) T. T., Architect, being consulted, put the kibosh on all pseudo-architectural books. He counceled that we decide what kind of a house we wanted (all right, it's to be a Long Island farmhouse, built for comfort entirely), and select an architect who has a good reputation for country houses. Then go to see him, and look him over and look his organization over and see if he is apparently capable of handling not only the design, but the construction of this kind of a building. Also find for whom he has done work and inquire what they think of him. We talked the matter over "enfamille," and found that my wife and I, being settled in our ways, wanted to have a comfortable house. Mrs. T. T. remarked that though I was interested in things beautiful, yet really I didn't choose my lounging-coat or my easy-chair because of their color and outlines. But we remembered that I'd sent my old easy-chair to a furniture maker's and had it copied in a lovely piece of wood and leather, and so got both results at once. This was to be our idea about the house.

The young ladies had different notions, all rather inclined to elaboration and the imitation of the nearby country-seats. So the choice seemed considerably deadlocked. In this family crisis Tom Thumtack, Client, took Tom Thumtack, ex-Architect, into his study (a very comfortable room made out of the old wood-shed), and poured him out a liberal drink, handed him a cigar and then went into executive session. After some time he convinced T. T., Client, that every point should be agreed upon by all before the architect was consulted, so that when consulted he would be dealing with a single organization, Tom Thumtack & Family, Incorporated, rather than a street mob. So Tom Thumtack, Client, went back into the living-room and organized his company. He made it a regular Board of Estimate and Apportionment. He should have four votes, Mrs. T. T. three, and each daughter one (Peter didn't want a vote if we'd build him a good dog kennel), and all matters except cost should be settled by a plurality and the cost by a two-thirds majority. We tried the scheme out on the style of the house and various kinds were suggested, but finally a Colonial farmhouse, a modernization of the comfortable old shack in which we were living, was elected with dissenting votes for Italian renaissance, like Lilly's right-hand neighbor and Norman after Janet's close friends. They left it to me to select the architect who had the best reputation for such a building. By consulting the experience of Tom Thumtack, ex-Architect, we had avoided these usual mistakes. We had not selected an architect because of friendship and we had come to a method of agreement, so that the architect when selected would receive but one set of instructions.

I called first on Frank Pencil-pusher. He was working on a competition, but came out briskly to meet me; showed me sketches for his Peace Palace at the Hague, a bridge over the Hudson River and—well—I asked to see Jackson's house at Navesink. "Oh; that

little shack for Jackson. Do you like that? Jackson nearly spoiled it, wouldn't build the ramps down to the water and the swell boat landing, missed a great opportunity. Had to fight to get it Colonial. Jackson insisted on a port cochere that nearly killed an elevation." I was greatly impressed but when I went out Tom Thumtack, ex-Architect, joined me. "Want to be a stepping-stone for Pencil-Pusher's pedestal?" "That young man will arrive!" I indignantly answered. Does he really want to do country houses? "If you're going to build a home why not go to a home-builder?" said Thumtack, ex-Architect. The dazzle of those ambitious sketches was wiped from the eyes of Tom Thumtack, Client. "I guess you're right," I assented.

I called on Richard Daniels a few days later. He did not show me a single design for the Michigan State Penitentiary nor a single defeated conception of St. Michael the Prophet. He talked country houses and clients. I mentally noted the names of several for whom he had done about the kind of a house we wanted at about what we wanted to pay for it, and then went to see them. The first two were out. The third said Daniels knew his business. I went back to Daniels' office soon and got down to brass tacks. I'd first consulted T. T., ex-Architect. I was liberal on the percentage, but I insisted on two clauses. The first was that we should study the general scheme and get an approximate estimate, and then that we should study every point exhaustively before we made plans and specifications. I did not anticipate much trouble there. The second was more important and referred to superintendence. I insisted on having an exact statement of the time his representative would spend on the job each week and, also, I required that his superintendent be a practical man who had not assisted in the design of the building. We agreed, and after it had been reduced to writing, I signed up the contract.

PREPARING THE DRAWINGS.

Our Board of Estimate and Apportionment had been preparing its program and, as fast as essentials had been voted on, they were reduced to writing. We decided on just what we wanted; for example, my wife had always craved a greenhouse because she really loved flowers. We voted her a modern conservatory. I am of a nervous nature, due to years passed in the countless worries of a busy office. I wanted a place I could go and hide like a hermit. Go and hibernate! they all gladly voted. We talked and planned and voted. I never before had gotten so near to my family. When the "program" had at last been completed I called upon Daniels. We didn't invite him down to dinner, to waste his time and put the whole matter on a false plane of hospitality. He got him down for business. Right after breakfast we made him come down every morning till we had finished and never asked him to stay on to luncheon. We gave him extra copies of the program. We made him first present a diagram, not a picture, and I jumped him every time I saw a hint that he was aiming at "composition." When he had solved the program

I made him get two estimates, and then we had a very chastened meeting of the Board of Estimate and Apportionment. Each had cut out something. Wife lost her dear conservatory. I traded a first-floor den for a "burrow" in the cellar. The girls lost their third-floor dancing room, and Peter barely kept his dog kennel. We wrote another program for a much smaller building. The second estimate was under the third part of Uncle Joshua's good pounds sterling, which was all I dared spend on a building.

Tom Thumtack, ex-Architect, had wisely counceled us. We had avoided the greatest building heart-break of a house too big for the pocket-book, and a consequent final skimping and spoiling of a too large first proposition. Furthermore, we hadn't been wedded to the original program by beautiful pictures and hours wasted on details. Our second was a much smaller layout. We could do this smaller building handsomely. Tom Thumtack, ex-Architect, knew, as Tom Thumtack, Client, had no means of knowing, that Richard Daniels could not be a good designer and at the same time an accurate estimator, but he knew that Daniels would have to pose as one if pinned down by his clients. Why do the honest Richard Daniels let themselves be driven into this equivocal corner? They'd save themselves many enemies if they all had their office-door lettering read like a blind's man's placard: "I cannot estimate." If they all did it the clients couldn't frighten any one Richard Daniels into becoming professionally responsible for the cost of owner-dictated buildings.

THE CONTRACT.

With the figures in my hands, I took long council with Tom Thumtack, ex-Architect. I poured him out a number of drinks and forced good cigars on him. It was so bewildering. The figures were so different from each other. They varied by more than any builder had a right to make or had the means to lose. I wanted to throw them all into the waste-paper basket and telephone old John Mason to build the house and send the bill to me afterward, or to pay young Billy Engineer to superintend the job and keep track of time and materials. "Don't do it," says Tom Thumtack, ex-Architect. "You have retired from business and that would put you in deeper than ever." This contract way of doing things is all wrong; that's evident from the figures, but let some other fellow work out a better method. I'll show you an easier method. Cut the letter-heads off those bids, I want the names only. Here's Ivan Carpenter, what do you know about him? He's an old-line builder, you say. Here's John Concrete, a structural specialist; used to be an inventor. Here's Billings & Co., Broad St., New York; that's a kid glove outfit with big overhead charges. Who's this James Builder & Son? Son went to Sheffield. Both seem to have homes here.

Well spoken of.

Old man conscientious, son educated! Can give a bond! Give me their figure! Why, it's right in the middle. They have the law of averages on their side. Theirs is the composite figure. Give them

the job and bond them to complete it and make them complete it on time by a forfeit.

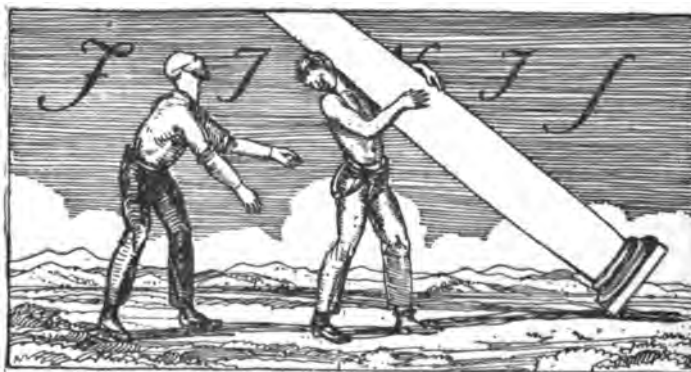
THE BUILDING.

Every Monday Daniels' man comes down here and spends the whole day on the building. Daniels himself is here now and again, but I don't count on him for a watch-dog. He's here only for general effect. It isn't possible for him to have the proper interest in the way the stone is bedded when he is the man who worked out its size and its color. But his middle-aged ex-building superintendent doesn't know or care anything about the stone joint, but he's a holy terror on the mortar.

We expect trouble and we'll have it and we will get out of it or over it. We'll be glad when the job is done and we know it won't be done on time; that's why we keep the farmhouse. I asked Tom, ex-Architect, about that and he said not to worry, that we'd live in the house more years than it would take weeks to build it and at its tenth anniversary no one would come to remember whether it was done on time or not, but that they would readily see then whether it had been built properly. The forfeit keeps the builders from loafing.

We know that Richard Daniels is not very practical, but every time I see a touch that gives character and charm to that personal pile of wood and stone, every time I see its beautiful outline looming softly, every hour that I feel its domesticity, I thank the Lord he isn't. And every time I hear my ex-builder superintendent call down a careless carpenter, I feel that we'll get a good house by their efforts.

But once in a while a delay or mistake annoys me to the point of calling down Daniels, when I feel a quick pull on my coat-sleeve. "Remember, sir," says Tom Thumtack, ex-Architect, "you didn't hire him for a janitor."



NEW BUILDING FOR THE BUREAU OF ENGRAVING AND PRINTING, WASHINGTON, D. C.

The new building for the Bureau of Engraving and Printing, Washington, D. C., is an extensive addition to the previous group of buildings. It is for the purpose of manufacturing United States printed money, stamps, etc. We present a very interesting account of one of the many special equipments which have been installed in the building.

Signal Systems.

The signalling systems installed in the new building may be grouped under five different headings as follows: Watchman's Time Recorder and Telephone System, Electric Clock System, Division Report System, Fire Alarm and Chemical Pressure Release System, Messenger Call System.

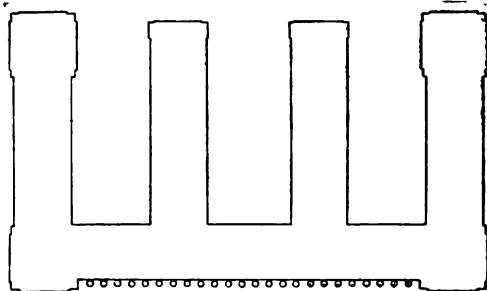
To some extent these systems are interconnected as will be noted later.

The size of the new building together with the nature of the work carried on in it, makes it imperative that a very complete system be provided to enable the Captain of the Watch, who is in charge of all watchmen, to know at all times where each watchman is, and be able to communicate with him if the necessity should arise, in addition to the regular watchman's system wherein a record on a paper dial is made of the visit of the watchman to each station.

There is provided at each outlying station, of which there are 83 installed at present, an especially powerful magneto generator, a special cordless type telephone, and an electric horn. In the office of the Captain of the Watch there are placed four watchmen's time recorders each of 25 stations capacity, it having been found desirable to divide the building into four sections, each of which is controlled by a group of watchmen. The clock movements are of the secondary type and operate in connection with the electric clock system. There is also an annunciator of 100 drops capacity divided into four sections of 25 drops each, corresponding to the 25 station recorder units, and a telephone switchboard of 100 lines capacity. There are also telephones on the desk of the Director and the Assistant Director, so that they can communicate with any part of the building at any time should they so desire.

In the regular operation of the system the watchmen turn in a signal from each station at stated intervals. This signal is received in the office of the Captain of the Watch in three

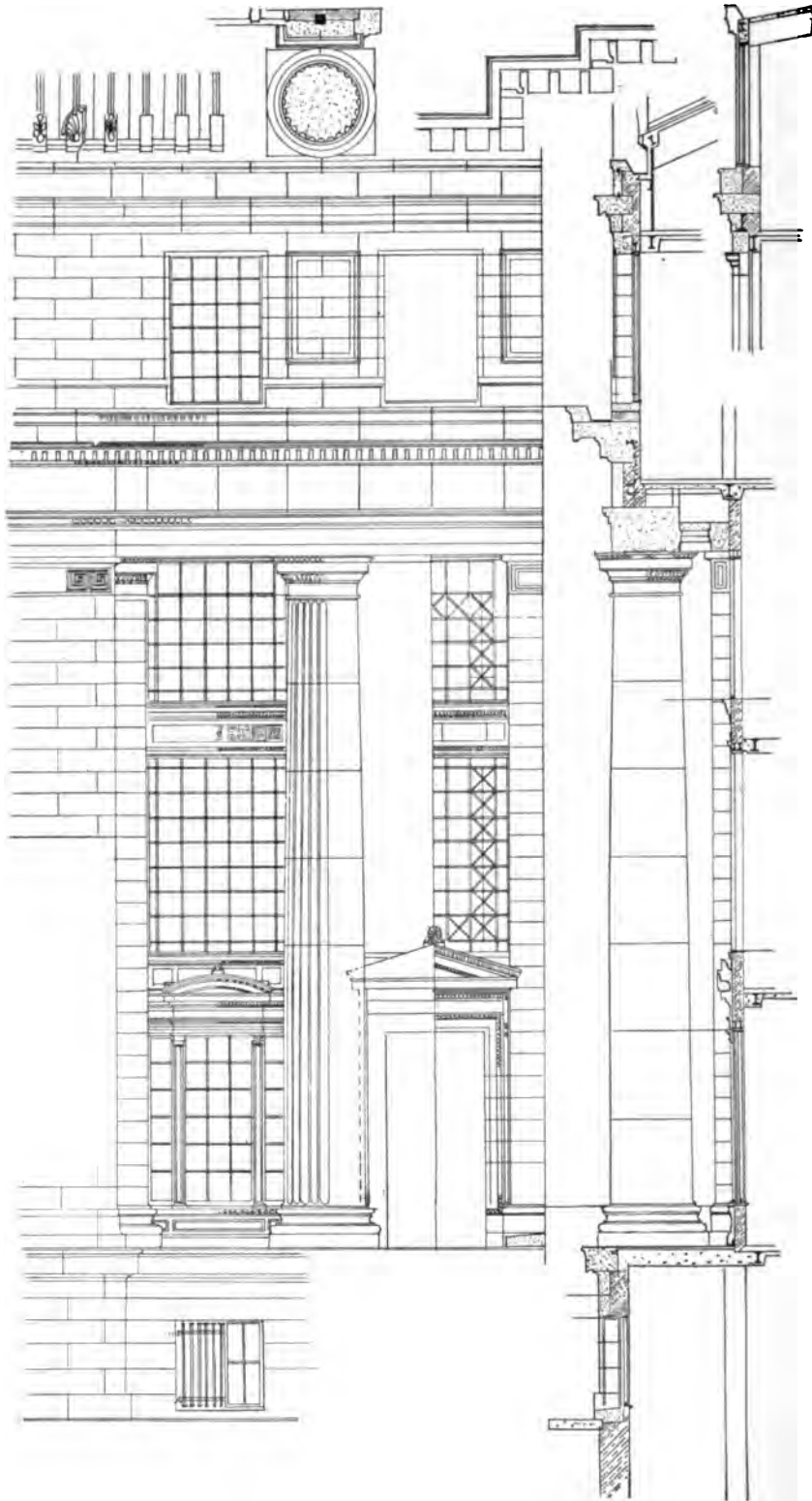
ways; by ringing of a bell, by the falling of an annunciator drop and by the perforation of a watch clock dial. Should the watchman fail to ring in on schedule time from any station, the Captain of the Watch is notified of such delinquency by the failure of the drop on the annunciator to appear and the bell to ring, and he can immediately start an investigation. The schedule of the watchman is laid out in such a manner that the drops fall in a certain sequence, so that it is impossible for a watchman to ring in on any but the right station at the right time without being detected. If in the course of his rounds the watchman discovers anything that may need to be reported to the Captain of the Watch, he can do this by raising the telephone receiver to his ear, which automatically causes a signal to appear on the telephone switchboard and thus notifies the Captain of the Watch who, by inserting a plug in the jack of the calling line, is placed in telephonic communication with the watchman. If on the other hand the Captain of the Watch desires to communicate with any



Plan.

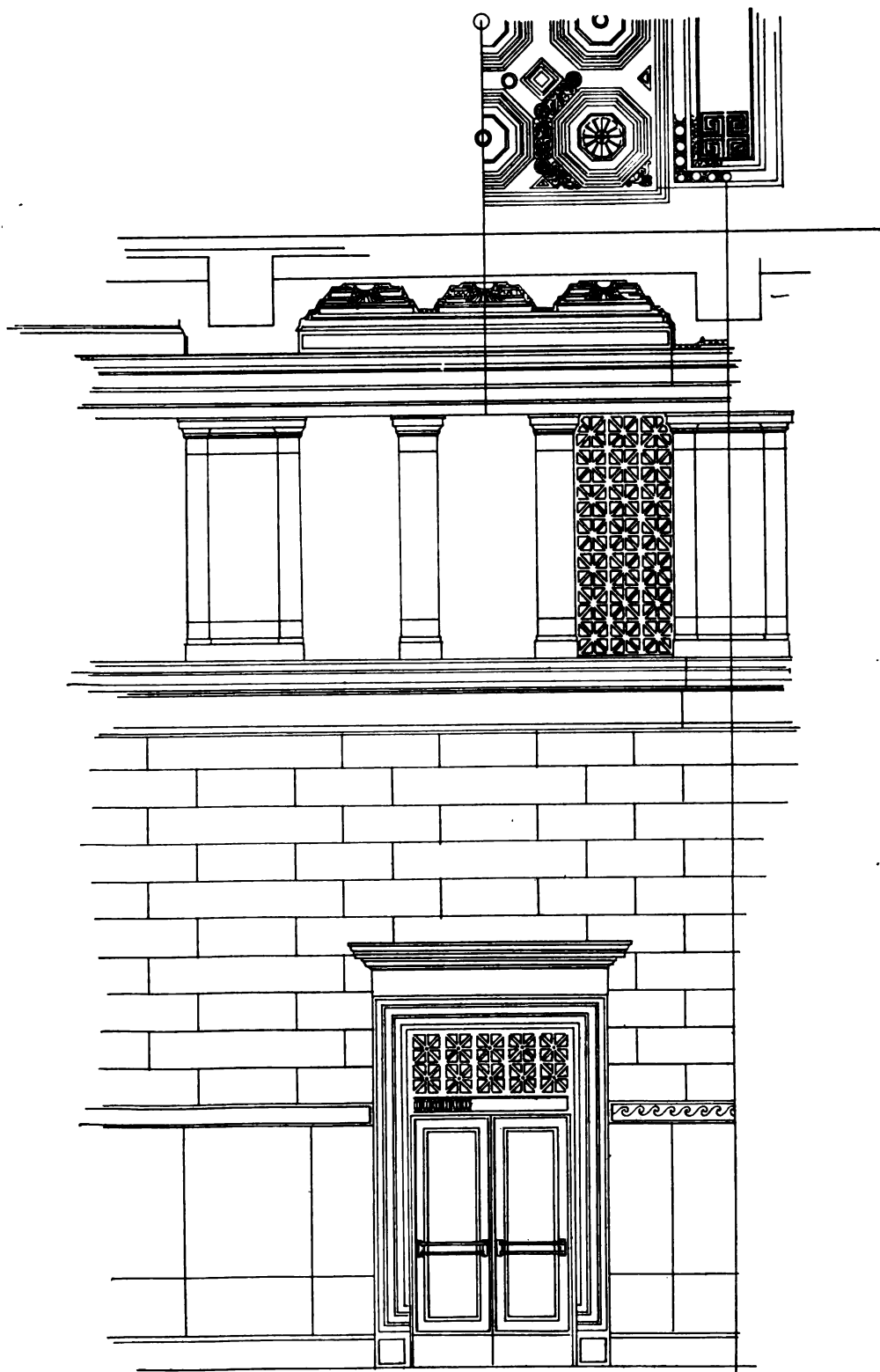
watchman he sounds the horn at the station near which the watchman is known to be. A special feature of this telephone system is the arrangement whereby all of the horns in the building may be sounded simultaneously. This may be used at night by means of code signalling as a general alarm to all watchmen, or may be used in the daytime as a calling system whereby any of the general officers of the Bureau may be located no matter what portion of the building they may happen to be in.

In the operation of the Bureau of Engraving and Printing, no department can be dismissed until all papers or plates for the production of stamps or money used or handled during



BUREAU OF ENGRAVING AND PRINTING. ELEVATION AND SECTION OF COLONNADE.
 General Contractor: J. Henry Miller, Inc.

James Knox Taylor, Supervising
 Architect, Treasury Department.



BUREAU OF ENGRAVING AND PRINTING, DETAIL ELEVATION OF LOBBY.

Oscar Wenderoth, Supervising
Architect, Treasury Department.

the day have been turned in to the custodians of such material, and properly receipted for. For this reason it may happen that at the regular closing time certain departments are not ready to be dismissed.

The object of the Division Report System is to furnish the Captain of the Watch with information as to what departments are ready to be dismissed at closing time, and also automatically furnish a permanent record of the reports sent in from each department. From the cabinet wherein he receives these reports, he must also be able to control the operation of the dismissal gongs and notify the watchmen at the exit of the building which departments have been dismissed and which held.

The apparatus at each outlying station, which is under the control of the person in charge of the room or section, consists of a magneto generator, a jack and two lamps behind glass bull's eyes, one of the bull's eyes

being green and the other red. In the cabinet in the office of the Captain of the Watch there is located a section corresponding to each outlying station, containing one red, one white and one green bull's eye with a lamp behind each, a jack, two locking push buttons, a key for controlling the program bells and a special alternating current remote control switch. There are also two time recorders similar to the ones used for watchman's records, the dials of one clock being printed in red and the other printed in green, and each containing one recording unit for each of the outlying stations.

When the head of any section or department has satisfactorily accounted for all of the material which has passed through his department during the day, he sends in an O. K. signal to the Captain of the Watch by inserting a crank on the generator and giving it one or two turns. This rings a bell in the office of



THE PUBLIC LOBBY

Otis Elevators.
Chicago Spring Butts Used.
Evans' "Crescent" Expansion Bolts.
Registers and Grilles: Wm. Highton & Sons Co.
Cooper-Hewitt Electric Lamps Used.
Money Dryer Equipment: W. G. Cornell Co.

Oscar Wenderoth, Supervising
Architect, Treasury Department.



BUREAU OF ENGRAVING AND PRINTING.

**Oscar Wenderoth, Supervising
Architect, Treasury Department.**

General Contractor: J. Henry Miller, Inc.
Electrical Contractor: The Carroll Electric Co.
Limestone (Bedford) Contractors: The Furst Kerber Cut Stone Co.
Royal Ventilators.
Star Expansion Bolts.

Cooper-Hewitt Electric Lamps Used.
Electric Signal Apparatus: The Holtzer-Cabot Electric Co.
Plumbing, Heating and Electrical Work: Thomson-Starrett Co.
Water Cooling Plant: Frick Company, Inc.



A PRESS ROOM.

Cooper-Hewitt Electric Lamps Used.

the Captain of the Watch, records on the time recorder having the green dial, trips the remote control switch which causes the white light in that particular section of the report cabinet to be lighted. The Captain of the Watch acknowledges the receipt of this signal by inserting a plug in the jack which extinguishes the white light and lights the green light in the Master Report Cabinet and also at the outlying station. The Captain of the Watch then presses the locking button located immediately under the green light which momentarily rings a bell at the exit and lights a green lamp in the lamp annunciator located at that point, which indicates to the watchman that this particular department may be dismissed. He also operates the key which controls the dismissal gongs in the section which has reported, and connects them to the program clock, so that they will be automatically rung at the proper time.

When any section or department is not ready to be dismissed at the regular quitting time due to a failure to account for all material which has passed through the department during the day, a "Hold" signal is sent to the Captain of the Watch by inserting the handle end of the crank into the jack of the outlying station, which causes a red light to appear in the Master Report Cabinet, a record to be made on the clock having the red dial sheet, and a bell to ring momentarily, at the same time light-

ing the red lamp at the outlying station. The Captain of the Watch then signals to the watchman at the exit that this particular section has been held, by pressing the locking button immediately under the red light, which rings a bell momentarily at the exit and causes a red lamp to light in the annunciator. He also disconnects the dismissal gongs of that department from the program circuit by means of the key located in the Master Report Cabinet. When the department is ready to be dismissed, the head of the department turns in an O. K. signal, as described above. The apparatus is so arranged that the Captain of the Watch cannot signal to the watchman at the exit that any section or department has been held or dismissed without first having received a similar report from the head of the department.

The fire alarm system installed in this building is somewhat different from the average industrial fire alarm system in that no signal is given to the employees in the various rooms, the signals being confined to the five or six officials and employees who have need for knowing when an alarm has been turned in. The fire fighting equipment of the building is of the dry pipe type in which the chemicals are stored in tanks in the basement. In case of fire compressed air is admitted to the tanks, forcing the chemicals through the pipes into all parts of the building. The building is

divided into four vertical sections each of which is supplied by a separate chemical tank. The valve which admits the air pressure to the chemical tanks is electrically operated and is connected to the fire alarm stations in a manner to be described later.

Located throughout the building are 70 fire alarm stations consisting of a small green "Break-Glass" type of station, and a larger red sector box station with contacts for tripping an auxiliary city box. The breaking of the glass in the small green station causes contacts to be made which trip the chemical pressure release valve and admit the chemicals as described above. This does not send in any signals and is intended for use in case it seems inadvisable to call out the fire department. The sector box station is so arranged that in case of fire the glass is broken and a lever pulled down, closing the contacts leading to the City of Washington Fire Department's auxiliary box and causing an alarm to be sounded at fire headquarters in the regular manner. Pulling down the lever also operates the set of contacts which trip the chemical pressure release magnet as described above. It also causes a drop to fall in an annunciator in the office of the Captain of the Watch and in the office of the Chief Engineer, notifying them of the location of the station from which the alarm has been sent in, and sounds a code alarm on the electro-mechanical and tapper bells which are located at several points in the building.

In order to test out the system without calling the City Department or releasing the chemicals, it is only necessary to open the door which contains the glass. This exposes a lever on the front of the sector box which, when pulled down, sounds the code on the electro-mechanical bells and tapper bells of the system. When this door is open, it is impossible to operate the contacts which control the City box and the chemical pressure release valves. This system is so arranged that all wires are under protection, so that the opening of a circuit at any point immediately gives an alarm. The opening of any door causes the disarrangement bell to sound so there is no possibility of accidentally leaving the door open.

The electric clock system consists of a single primary movement clock which is installed in the office of the Captain of the Watch. This master clock is connected to a total of 150 secondary clocks located throughout the building, all of which are controlled electrically and operated in synchronism with the master clock. The driving mechanism of the primary clock is automatically wound electrically. There are also installed three electrical time stamps which operate in synchronism with the master clock. The entire clock system is operated from a secondary battery.

Special button blocks with engraved name

plates, and finished to match the wood work are provided on the desks of the Director, Assistant Director and Captain of the Watch, and connected to gravity drop annunciators. This system is used in the ordinary manner for calling messengers and contains no special features.

All of the above systems are operated from storage batteries, there being three sets of such batteries, and a power panel so arranged that any system may be connected to any battery. There is provided for charging the batteries a 600 watt motor generator set which may be floated on the battery connected to the Division Report System. There is also a dynamotor, from the secondary side of which is obtained alternating current at 75 volts, 19 cycles, used for operating the dismissal gongs, which are of the double gong polarized type.

The above systems constitute one of the largest installations of signalling apparatus to be found in any building in the country. Each of the separate systems enumerated above is provided with separate conduits throughout. In the connecting up of this system there were used 66½ miles of wire.

The Carroll Electric Co., Washington, D. C., were the contractors for the system. The apparatus for the watchman's time recorder and telephone system, division report system, fire alarm, and chemical pressure release system, messenger call system, motor generator sets and control panel were manufactured by the Holtzer-Cabot Electric Co.; electric clocks by the Standard Electric Time Co.; storage batteries by the Willard Storage Battery Co., and wire by the Hazard Manufacturing Company.

Water Cooling Plant.

The water cooling plant was required to supply cold filtered drinking water to the entire corps of workmen throughout this large building, and to have a surplus for future enlargement.

The refrigerating machine is driven by the latest improved Corliss engine having double ported valves, heavy-duty bed and design throughout. The compressor has a renewable annular cylinder lining made of steel and a similar renewable annular face on the piston made of steel. The cylinder can thus be rebored at any time it becomes necessary, in the future, without renewing more than the annular piston face. The discharge line is provided with a special safety valve to relieve excessive pressure.

Water is cooled in two cork insulated cylindrical tanks, 6 feet in diameter by 8 feet high, provided with removable heads and containing a spiral pipe coil welded into one continuous length. The water is automatically fed to the tanks at hydrant pressure and is circulated through the building by two duplex pumps discharging into long circulating pipe lines which are carefully insulated. The water is regularly

cooled to 40 degrees F. and lower, with the machinery working only part of the day. The plant was built by the Frick Company, Waynesboro, Pa.

The general contractor for the building was J. Henry Miller, Inc. The Furst Kerber Cut Stone Company were the contractors for the Bedford Indiana limestone, of which the exterior is built. The Thompson Starrett Com-

pany were the contractors for the plumbing, heating and electrical equipment. Cooper Hewitt electric lamps were used for lighting the press rooms and work rooms. Registers and grilles were supplied by Wm. Highton & Sons Company. A complete money drying equipment which is an extensive installation was made by W. G. Cornell Company for use in renovating paper money.



HOUSE AT UPPER MONTCLAIR, N. J.

Squires & Wendehack, Architects.

L. C. SMITH BUILDING, SEATTLE, WASH.

GAGGIN & GAGGIN. Architects

The L. C. Smith Building in Seattle, has the distinction of being the tallest building in the world outside of New York city. It is 42 stories high, 21 stories in the main building and 21 in the tower. The general over all dimensions of the building are about 105 by 115 feet. The tower is about 35x495 feet.

Contrary to the usual custom in so large a building, the foundations are not of the caisson type for the building is carried on 1,276 concrete friction piles which were driven to 60 tons pressure to a depth of 50 feet below the surface. The gross weight of the building is estimated as 32,650 tons. There are 4,732 gross tons of steel used in the structural frame. The exterior of the building is finished for two stories in Washington white granite and the entire building above including the tower is in pure white ornamented terra cotta which makes the building stand out strikingly from its surroundings in the city of Seattle.

Other statistics concerning the construction show that there are 2,314 windows with 67,736 square feet of plate glass. The window frames and sash are all of bronze and throughout, the interior trim is of hollow steel, finished in imitation of mahogany. There are 1,432 steel doors.

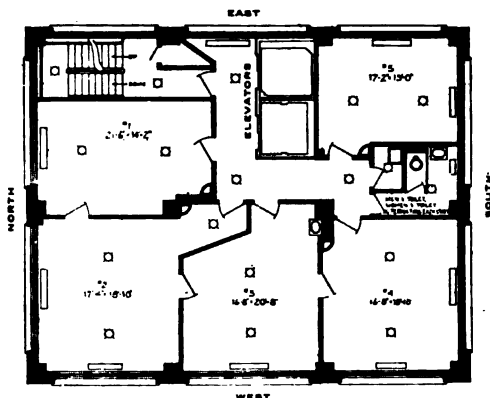
There are six stores besides small booths in the arcade and halls in the first story. In the main part of the building, there are 540 offices and in the tower, 60 more.

There are two stories below street level, the basement containing a restaurant, buffet and barber shop, while the sub-basement contains the heating, power and lighting plants of the building.

There are over 9 miles of metal conduit to carry telephone and electric light wires

to the various offices, and over 18 miles of wire. The elevator equipment consists of 8 1 to 1 Otis traction passenger machines, each having the duty of 2,500 pounds at a speed of 550 to 600 feet per minute. of these elevators 6 travel from the basement to the 21st story and one from the basement to the 33d story and one from the basement to the 35th story. Two of the elevators have a lifting capacity of 6,000 pounds at slow speed when it is desired to use the elevators for lifting safes. There is also another short rise freight elevator with a duty of 6,000 pounds at 70 feet per minute. The elevator signal system consists of the usual electric flash signal equipment with position indicator lamps on the ground floor, starter call back system, night service and annunciators service recording instrument and a telephone system connecting all cars.

The 35th story is an observation story surrounded by an outer balcony which makes possible the complete circuit of the tower and gives an extended view of the city of Seattle and the surrounding country. This observation room is known as the Chinese room and is paneled and finished in Burma teak. The teak is stained a very dark color with the exception of the wainscoting panels and the small ceiling panels. The wainscoting panels recite the history of the State of Washington and the City of Seattle and instances of local history, in Chinese characters. The characters are carved out of the solid wood and are done in gold bronze while the background of the panel is Chinese blue. The ceiling panels are illuminated in Chinese colors. The woodwork was done by G. Gerald Evans. Above the 35th story of the building a lofty pyramid forms the



Typical Plan of Tower Stories.

top. At the apex of the pyramid, 42 stories above the street, there is a glass ball, 8 feet in diameter which flashes the hour and quarter hours in red, white and blue at night.

The entrance vestibule, elevator corridor walls and arcade of the first story are panelled in Mexican onyx. In addition to the usual mail chute, this building is also equipped with a telegram chute, both of which were made by the Cutler Mail Chute Company.

Balcom and Darrow were the structural engineers for the building and the Whitney Company, the general contractors. They also did all the masonry, all the carpentry and other miscellaneous trades with their own workmen. The terra cotta was supplied by Gladding, McBean & Co. The plumbing and heating was done by the Rautman Plumbing and Heating Company; the complete lighting installation was carried out by the Lighting Studios Company, and the glassware for the fixtures was supplied by the Jefferson Glass Co.



TYPICAL PLAN OF THE THIRD TO TWENTIETH STORIES.

Gaggin & Gaggin, Architects.
Balcom & Darrow, Structural Engineers.



THE L. C. SMITH BUILDING, SEATTLE, WASH.

General Contractors: The Whitney Co.
Otis Elevators.
Royal Ventilators.
Plumbing and Heating: Rautman Plumbing & Heating Co.
Terra Cotta: Gladding, McBean & Co.

Gaggin & Gaggin, Architects.
Balcom & Darrow, Structural Engineers.



L. C. SMITH BUILDING. ENTRANCE TO ARCADE AND STAIRWAY TO THE BASEMENT
RESTAURANT. ELEVATOR CORRIDOR FROM ENTRANCE.
General Contractors: The Whitney Co.
Lighting Fixture Glassware: The Jefferson Glass Co.
Lighting Installation: Lighting Studios Co.
Cutler Mail and Telegram Chutes.



L. C. SMITH BUILDING. BASEMENT RESTAURANT AND OBSERVATION ROOM, KNOWN AS THE "CHINESE ROOM," 35TH STORY.

Lighting Fixture Glassware: The Jefferson Glass Co.
Stanley Butts Used.
Star Expansion Bolts.
Interior in Burma Teak: G. Gerald Evans.

CENTRAL STATION, MEMPHIS, TENN.

D. H. BURNHAM & CO., Architects

This station is jointly used by four railroads but was erected under the management of the Illinois Central and the Yazoo and Mississippi Valley Railroads. The cost of construction of the station building was nearly \$600,000, about \$800,000 more was expended on track elevation work and the total expense involved amounted to about \$2,000,000.

The station building proper covers an area of 150x250 feet and has eight stories with a height of 130 feet above the street.

The five upper stories are devoted exclusively to the offices of the two railroads which built the station. On the fourth floor there is an emergency hospital for patrons of the road who may become ill or in need of surgical attention.

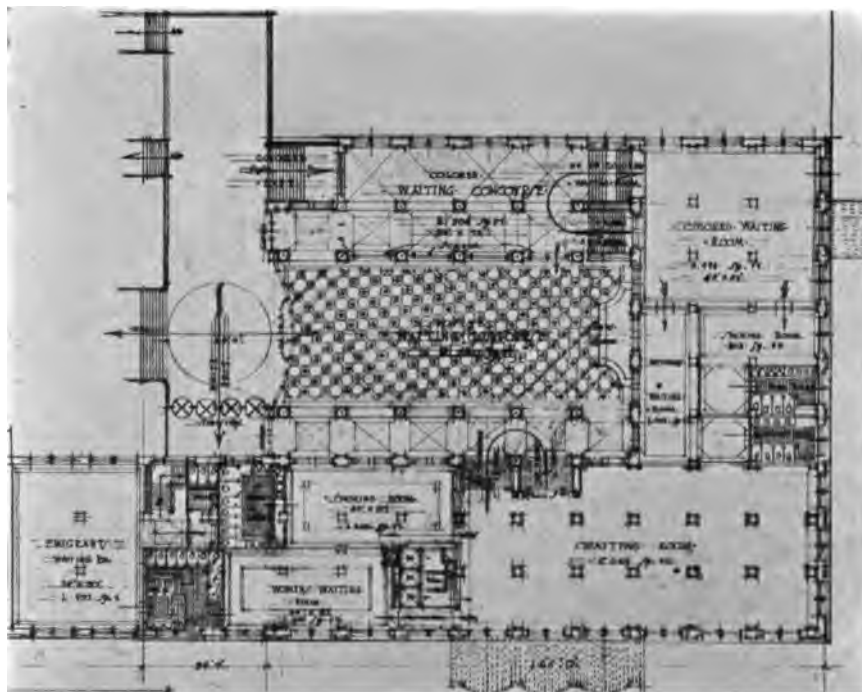
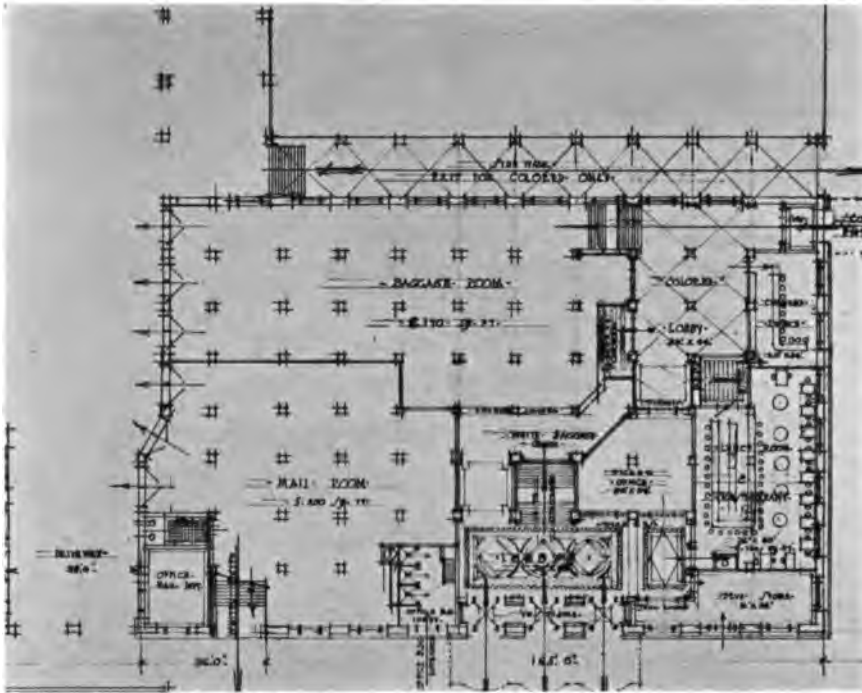
The main entrance to the station and elevators to office floors is on Main Street, although there are additional entrances on Calhoun Street leading directly to a waiting room for colored people and to a carriage way and cab stand. There are also separate exits for white and colored passengers on Main Street and Calhoun Street, respectively, to avoid the necessity of passing through the waiting rooms.

In this connection it may be stated that throughout the entire station there are separate ticket offices, waiting rooms, restaurants and other conveniences for white and colored people so arranged that the two races do not come together at all except at the train gate. The immigrant rooms and their attendant facilities are also distinct and separate.



WAITING CONCOURSE.

Interior Trim and Woodwork: Enochs Lumber and Mfg.
Electrical Contractors: F. E. Newbery Electric Co.
Cutler Mail Chute.



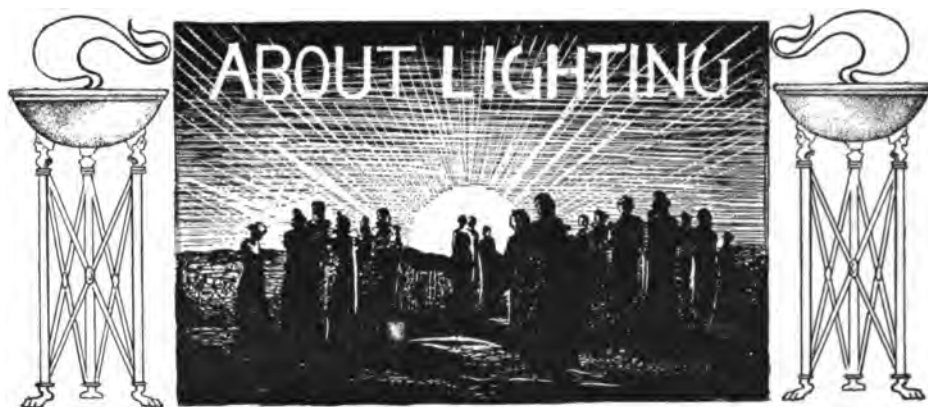
PLANS AT STREET LEVEL AND CONCOURSE LEVEL. CENTRAL STATION, MEMPHIS, TENN.
 Interior Trim and Woodwork: Enochs Lumber and Mfg. Co. D. H. Burnham & Co., Architects.
 Standard Plunger Elevators.



CENTRAL STATION, MEMPHIS, TENN.

Builders: James Alexander Construction Co.
Electrical Contractors: F. E. Newbery Electric Co.

D. H. Burnham & Co., Architects.



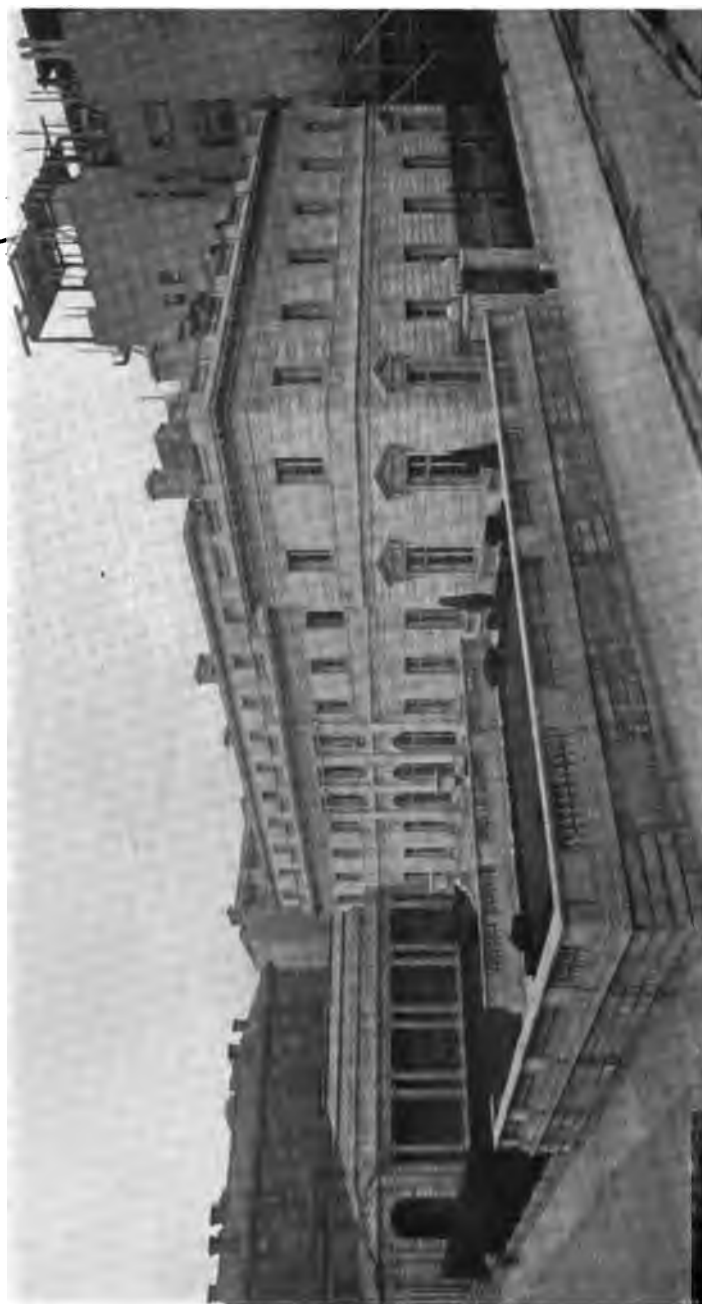
**EYE-SIGHT
vs.
GLARING
LIGHTS AND
THE
FIXTURE**

Two men were dining at an exclusive New York club. One was an architect, the other a business man who had made good. Both had traveled,—with their eyes open,—and both were well read, and sober. Said the Architect: "We get blamed for everything, and now they're trying to make us responsible for the other fellow's blunder. It's the last straw. I'll admit cheerfully that our lighting is bad,—if not positively dangerous, but it isn't entirely up to the architect,—not by a long shot." "No, I don't think it is," agreed the Business Man,—"It's a case of 'too many cooks spoil the broth.' That's about the size of it. Let's go to a show." And they did.

In his "Discourse on Method" René Descartes states: "For it occurred to me that I should find much more truth in the reasonings of each individual with reference to the affairs in which he is personally interested, and the issue of which must presently punish him if he has judged amiss, than in those conducted by a man of letters in his study, regarding speculative matters that are of no practical moment, and followed by no consequences to himself, farther, perhaps, than that they foster his vanity the better the more remote they are from common sense; requiring, as they must in this case, the exercise of greater ingenuity and art to render them probable." Our business friend was right. There *are* too many cooks, and they are making a sorry mess of a lighting broth which is being served out to a bespectacled nation in allopathic doses. This statement, *per se*, requires amplification. Let us call a few of these "cooks" by name, and if possible, place the blame, where it belongs. First, but by no means foremost, is the manufacturer of "fix-tures"; affairs of metal, which dangle from the ceiling, and protrude from the side wall, in finishes ranging from brass, brushed brass, antique brass, and—I forget the other 200 just now. Every architect knows the fixture man, and the fixture man knows every architect,—that's his business. If the architect isn't particular the fixture man will walk right into his private office (without knocking), call him by his front name, and offer him Cremona cigars. Some architects respond to this treatment. Others,—the majority,—hold the fixture man at arm's length. All realize that it is impossible for them to *get what they want*, but resignation follows closely upon thousands of other details,—each requiring their individual attention. It is difficult, if not impossible, to drag the fixture man out of the beaten path. He has been wallowing in the rut for so many years that it is very hard for him to grasp new ideas, and harder for him to apply them. It is a fact that lamp manufacturers have been obliged to make their own fixtures in order to meet the requirements of their improvements in gas and electric lamps, it being impossible to awaken

the fixture manufacturer from his perennial state of somnolism. The public has become gradually impregnated with the idea that the lighting fixtures of the store, home, or office, like its surroundings,—furniture and fittings,—should be quite distinctive, and different from the commonplace, and this awakening has played havoc with makers of lighting equipment whose motto has been standardization, it being no longer possible to *make* a few “standard” types,—and *sell* them to everybody. In other words, the formula for successful manufacture which applies quite generally to all staple commodities, *i. e.*, “the elimination of unessentials,—the conformation with standards,—and the reduction of overhead expense, and manufacturing cost, by selling in enormous quantity lots” does *not* apply in the case of lighting fixtures, and the failure of concerns who have attempted to sell such fixtures, in packages, wired, complete, and ready to hang is a matter of record. After all it is the AVERAGE condition which rules. Extremes always have, and always will meet. And those fixture concerns who in the past catered exclusively to the whims of wealthy patrons, now find themselves forced to compete actively for a class of business which they previously scorned,—public buildings, offices, stores, and residences of the average type. As a result of this condition every lighting contract becomes a veritable bone of contention for wrangling manufacturers,—much to the disgust of the architect, and all who have been subjected to the annoyance. The market is flooded with worthless lighting equipment. The architect has no way of separating the wheat from the chaff. There are some fundamentals about lighting, so simple, so obvious, that once they are revealed in the spotlight, anyone can recognize their truth and importance. First amongst these is the subject of “Glaring Lights vs. Eye-Sight.” It is a subject which concerns every element engaged in the manufacture and sale of energy in luminous form. The fixture manufacturer is no exception. No man can appreciate architecture or decoration when glaring lights are before their eyes, because the glare blots out detail and spoils the visual picture. Then why are bare lamps used on fixtures? Because the fixture manufacturer has not provided a means of enclosing the lamp in some way, so that its dangerous glare is reduced, and its useful light utilized. This condition must be corrected by legal measures. Not make-shift legislation, restricted to factory lighting (an attempt to dodge the *real issue* by a “society” controlled by sustaining members), but universal LAWS, making it a *state’s prison offense* to make or sell lighting fixtures injurious to the eyesight of the American public, of this and our next generation.

F. LAURENT GODINEZ,
Contributing Editor on Lighting.



Courtesy of "Stone".

RESIDENCE OF MR. HENRY C. FRICK, 70TH STREET AND 5TH AVENUE, NEW YORK.

Thomas Hastings, Architect.

Builders: Cauldwell Wingate Co.
 Metal Doors and Trim: Interior Metal Mfg. Co.
 Cement Walks and Floors: Harrison & Meyer.
 Carved Stone: Ardolino Brothers.
 C. S. Norton's "Royal Blue" Bedford Indiana Lime Stone. Furnished by Arlando Marine.
 Laundry Equipment: The Hill-Canton Dryer Co.



DETAIL OF RESIDENCE OF MR. HENRY C. FRICK.

Builders: Cauldwell-Wingate Co.
Service Call System: Holtzer-Cabot Electric Co.
National District Telegraph—Watchman's Supervisory
and Fire Alarm Protection.



DETAIL OF RESIDENCE OF MR. HENRY C. FRICK.

Wrought Iron Fence: Wm. H. Jackson Co.
 Carved Stone: Adolino Brothers,
 Plumbers: J. N. Knight & Son.

Thomas Hastings, Architect.



DETAILS OF STONE CARVING ON THE RESIDENCE OF MR. HENRY C. FRICK.
Carved By Ardolino Bros.
Attilio Piccirilli, Sculptor.

Thomas Hastings, Architect.



FIRST NATIONAL BANK OF APPLETON, WIS.

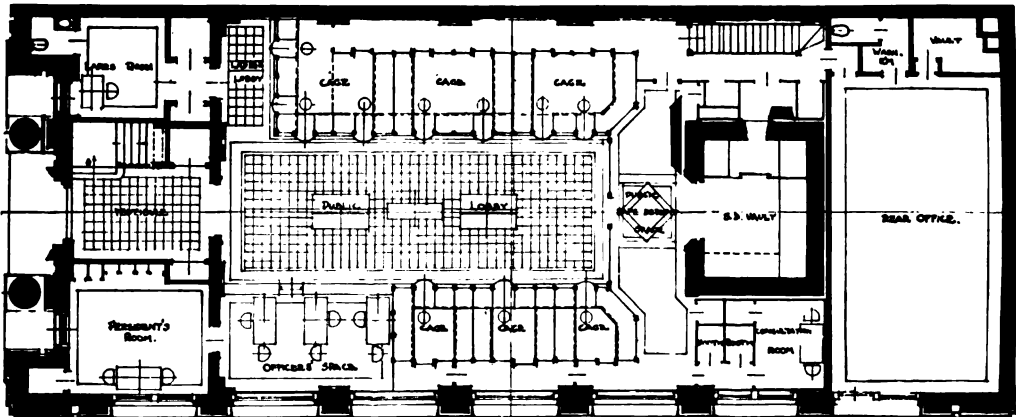
CHILDS & SMITH, Architects

Built of limestone, three stories high, on a site 44 x 116 feet, this bank building is as representative a fire resistant structure as modern methods can make it. The frame is of steel protected by concrete and the exterior walls consist of a base course of blue Bedford stone with buff colored stone above. The two columns of the portico are monoliths of two story height and are detached. The Corinthian capitals are carved stone, well executed, and careful workmanship is characteristic of all the stone carved ornamentation of the entrance portico and cornice.

The entrance, framed in carved lime-

stone, is further ornamented with pilasters and panel of verde antique marble which immediately enclose the plain bronze entrance doors. The vestibule is paneled to its full height with Botticino marble. It has an ornamental plaster ceiling and the stairway which leads to the second floor is decoratively treated, being built of marble with a bronze stair rail. The floor is laid with squares of grey Tennessee marble set in patterns. A pair of inner vestibule doors of bronze separate the banking room from the vestibule.

The banking room, occupying the full width of the building, is of double story



FIRST NATIONAL BANK OF APPLETON, WIS.

Charles Greinke, Builder.
 All Metal Equipment: Art Metal Construction Co.
 Grant Anti-Friction Pivot Lifts.

Childs & Smith, Architects.



THE BANKING ROOM.

height, with a mezzanine at the rear above the vault. Its finish is similar to the vestibule, with counters of Botticcino marble, set with plain bronze grilles above. The screen before the vault is framed in marble

with four highly ornamented Corinthian pilasters, cut from Botticcino marble with inlaid panels of black and gold marble.

The plan provides for the officer's quarters to the right of the entrance, with the



THE WORKING SPACE, SHOWING METAL FURNITURE AND FILING SYSTEM BUILT ON VAULT TRUCK.

All Metal Equipment: Art Metal Construction Co.

president's room to the right of the vestibule. Balancing this space on the other side of the vestibule is the ladies' department, with a small writing room.

As in the construction of the building, woodwork has been almost entirely eliminated, being used only for decorative paneling in the president's office and ladies' room, so also in its equipment we find most careful attention given to provide non-combustible fixtures and furniture. The complete office equipment for bank officers' use is of metal, finished in imitation of mahogany. In all the working portions of the bank, there is no woodwork. Within the cages, the counters are all of metal and every piece of equipment is on metal supports or in metal cases. In

the teller's cage all of the important files to which constant reference is necessary, such as check files, signature cards, etc., are all kept in metal filing cabinets which are built on movable trucks, designed to fit beneath the counters in the day time and to be wheeled into the vault at night. By the use of this system much time is saved and it is not necessary to constantly carry material back and forth from the vault. In the bookkeeping department all desks, counters and filing cabinets are of metal and the entire vault equipment is of metal. The finish is in plain enamel. This equipment was built and installed by the Art Metal Construction Company. The general contractor for the building was Charles Greinke.



ALL METAL SHELVING IN VAULT EQUIPMENT.
All Metal Equipment:
Art Metal Construction Co.



THE DOMINION BANK, TORONTO, CANADA.

Contractors: Canadian Stewart Co., Ltd.

Waterproofing: Industrial Foundation & Waterproofing Co.

Darling & Pearson, Architects.



THE DOMINION BANK, TORONTO, CANADA.

Contractors: Canadian Stewart Co., Ltd.



THE DOMINION BANK, TORONTO, CANADA.
Cabinet Work Supplied and Completed by The J. C. Scott Co., Ltd. Darling & Pearson, Architects.
Frederick S. Holmes, Bank Vault Engineer.



PROCTOR'S THEATRE, MT. VERNON, N. Y.

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 Terra Cotta: Federal Terra Cotta Co.
 Bulletins: U. S. Changeable Sign Co.
 Decorations: Wm. Eckhart Studios, Inc.
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 Grant Vertical Pivot Lifts.

Arland W. Johnson, Architect.



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Arland W. Johnson, Architect.

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Evans' "Crescent" Expansion Bolts.
Heating and Ventilating: W. G. Cornell Co.**

Wm. Higginson, Architect.

December, 1914

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AND BUILDING

L. C. Smith Building, Seattle, Wash.

Bureau of Engraving and Printing,
New Building, Washington, D. C.

Residence of Mr. Henry C. Frick, New York

Two Bank Buildings

Editorial

By Theodore Starrett

About Lighting

By F. Laurent Godinez

Tom Thumtack Client

By Tom Thumtack

Large Detail Plate

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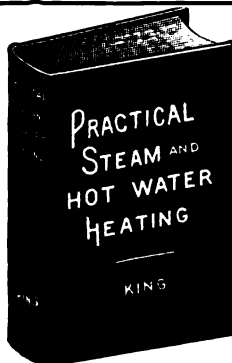
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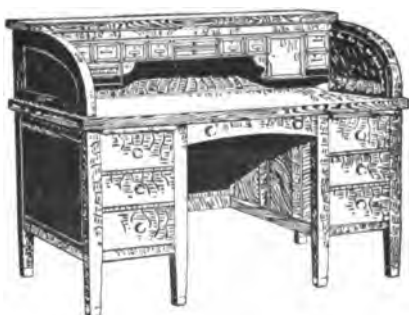
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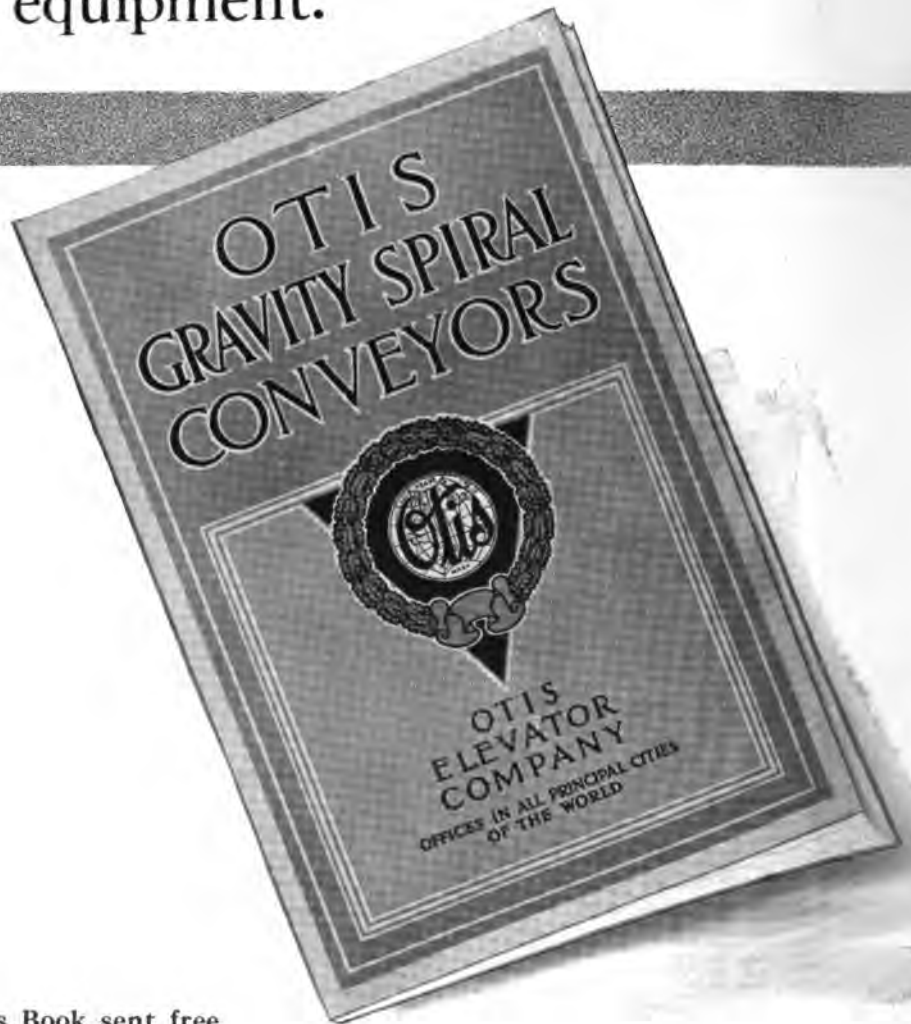
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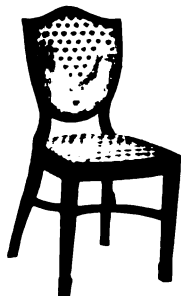
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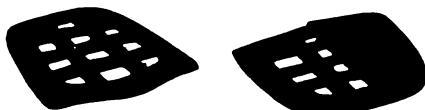
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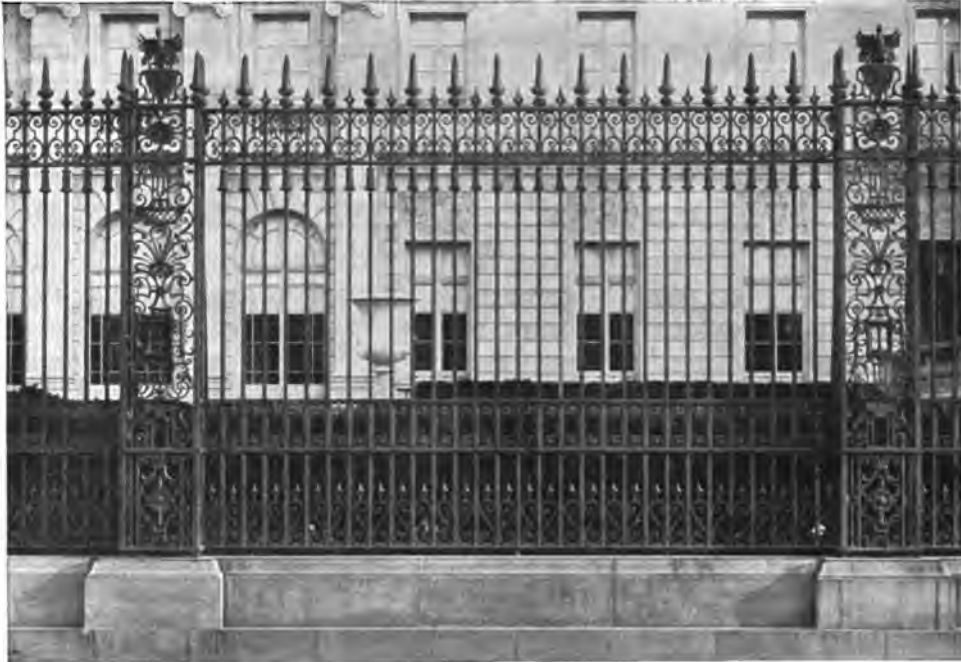
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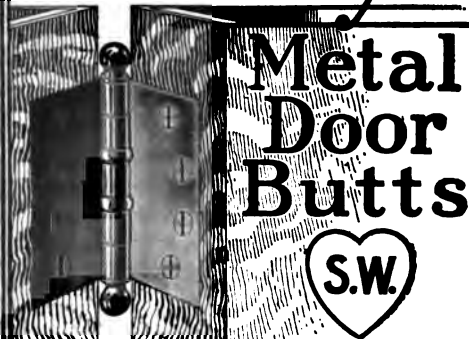
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BOOK REVIEWS

MODERN PLUMBING PRACTICE, Vol. 1, by J. Wright Clarke, M. R. S. I., edited by Walter Scott, A. R. S. I., R. P. London, B. T. Batsford, Ltd.; New York, D. Van Nostrand Company; 6 x 10 inches; 284 pages, cloth \$4 net.

This book is an account of practical lead working and plumbers' materials. It is illustrated with upwards of 400 illustrations from the author's drawings and from photographs. It is a considerable improvement over the first two editions, the first of which appeared in 1888. The author's death before the publication of the work was regrettable, but the larger portion was placed in readiness for publication before his death and the first volume shows that the matter has been ably handled by the editor, Mr. Walter Scott.

The first volume is entirely devoted to working in lead and as such is a most valuable contribution to the literature on the subject. It treats of the metals, lead and zinc, copper and iron, of their chemical and physical properties, and then with the manufacture of lead by various processes into commercial forms. The diagrammatic illustrations are excellent throughout and render the instructions in the text very clear. In addition to the working of lead pipes in various forms and for various purposes, the use of lead for lining tanks and for many other purposes is considered.

The embossing and stamping of lead and the manufacture of lead ornaments is gone into, with considerable detail, and also there is a most interesting section on the buring of lead and fret or lead light glazing.

The author's treatment of the subject is such that lead working rises to the dignity of an art and the usual opinion of the men in the street concerning a plumber might be considerably modified if that individual qualified as an expert in the working of lead.

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Art and Architecture

ARCHITECTURAL LEAGUE EXHIBITION.

The 30th annual exhibition of the Architectural League will open February 7th and continue to February 27th, 1915. The exhibition will be held in the building of the American Fine Arts Society, at 215 W. 57th Street, New York City. Previous to the public exhibition there will be the annual dinner, held on February 5th, the league reception held February 6th and later three public lectures on Saturdays of February 13th, 20th and 27th. A circular of information concerning the conditions for exhibitions and competitions for the various prizes to be awarded can be obtained upon application to the Secretary of the League at the American Fine Arts Society Building.

Mr. Charles A. Rich and Frederick Mathews, Jr., architects, desire to announce their association at 320 Fifth Avenue, New York City.

At the recent 48th annual convention of the American Institute of Architects, the building committee reported upon the condition of the Octagon. This building, which is so rich in historical association, is a typical building of the year 1800, and it is a matter of great good fortune that it is in the possession of the American Institute of Architects. It is understood that the nature of the changes in the grounds and building will be in the direction of restoration. The committee made a thorough examination of the building and recommended that careful plans, elevations and sections of the house be made so that in case of fire there would be an accurate record of the arrangements and details of the building. At the meeting resolutions were adopted deferring consideration of one plan proposed to erect a new building on the lot adjoining the Octagon House and providing that funds be raised for the complete restoration of the Octagon House as a memorial to Mr. McKim.

The committee was unanimously of the opinion that the complete restoration of the Octagon building and grounds would have been much more acceptable to Mr. McKim than the former project. It is convinced that the careful repair and restoration of the Octagon and its grounds, including terraces, garden, walls and various secondary buildings would have appealed greatly to him as a record of the dignified home of the period, one with which he had great sympathy.

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Mr. A. H. Ehrensing announces that he has removed his office to 3816 Coliseum Street, New Orleans, La. He is desirous of receiving manufacturers' samples and catalogues, and is particularly interested in new materials for building construction.



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Lighting Notes

It is with pleasure that we direct the architect's attention to a booklet, recently issued by the Westinghouse Lamp Company, entitled "Building Business With Light." This booklet gives *new ideas* about lighting which have never been expressed before by any lamp manufacturer. The illustration above, is one of many showing the adaptability, and progress in lamp making achieved by this pioneer concern. It takes 36, 60 watt old style carbon lamps to equal the light of one Westinghouse, improved Mazda, of the gas-filled, concentrated filament type. In other words the



improved Mazda, requires only one-fourth the amperage or volume of current that the Carbon-filament lamp requires, for an equal amount of light. The most important portion of the pamphlet is that devoted to Individuality in lighting. The time has come when merchants are beginning to realize that in the past the capital they have invested in artificial light, has yielded much less than even a "legal rate of interest." In other words they got light and nothing else. Their lighting equipment was exactly like every other merchant's, and consequently was devoid of advertising value to them, since advertising value can only be obtained from something which

attracts attention, and it is only the "effect different" in lighting or anything else which attracts. Why buy fixtures which every one else has? Get something different. Building Business With Light tells how to make lighting which is absolutely original and distinctive, and without descending to cheap theatrical or vulgar methods. It will be apparent to any one possessing the slightest degree of intelligence, that there is no limit to the variety of artistic and pleasing results which can be worked out by anyone from the valuable suggestions contained in this remarkable booklet. Store lighting, including direct, indirect and semi-indirect applications are included, also display window lighting and show case lighting. Every architect should have a copy, which can be obtained free of cost by applying to the Westinghouse Lamp Company, Advertising Department, 1261 Broadway, New York.

Industrial Progress

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All of the hollow metal work in the Lord & Taylor building was installed by the Interior Metal Manufacturing Company of Jamestown, N. Y., under the original contract with E. Brooks & Co., and in accordance with the specifications and plans of Goldwin Starrett & Van Vleck. After the completion of the building several openings were provided with fireproof closures by a local contractor in New York, but the main contract was installed by the Interior Metal Manufacturing Company.

DRIP-PROOF WIREGLASS.

A Pennsylvania wireglass company has evolved a new type of glass that solves a problem often of great importance in manufacturing plants, that of eliminating the drip from the underside of skylights. In many of the arts, in silk and cotton mills, paper factories, chocolate works, etc., the falling of a single drop causes great damage. The new glass is called "Aqueduct" and the under-surface has eight webs or channels to the inch, the webs being of such form as to give the greatest degree of capillary attraction. The result is that, even when pitched as low as ten degrees above the

(Continued on page 26.)



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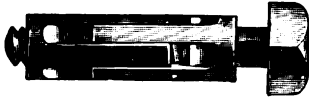
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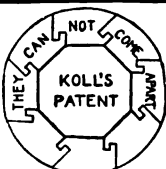


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Circulars of these various products may be obtained upon request at either New Britain, Conn., the New York office at 100 Lafayette Street, or at the Chicago office, 73 E. Lake Street.

(Continued on page 28.)



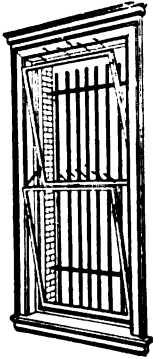
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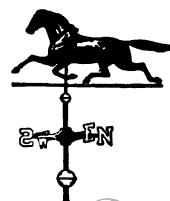
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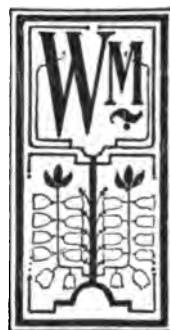
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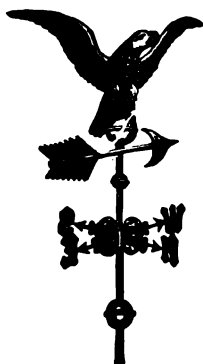
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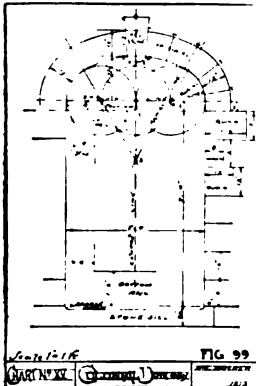
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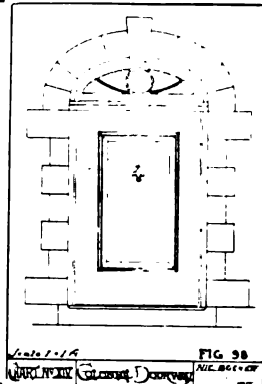
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Table of Contents

Introduction.	Chapter V. The chalet facade; window disposition; plans and elevations.
Chapter I. Switzerland visited; Swiss architects and builders.	Chapter VI. The chalet facade; system of ornamentation.
Chapter II. Construction details; granary construction; examples of modern and older chalets.	Chapter VII. The chalet interior; planning, plans and elevations.
Chapter III. The chalet skeleton; basis of ornament; small chalets.	Chapter VIII. The chalet interior; interior decoration; furniture.
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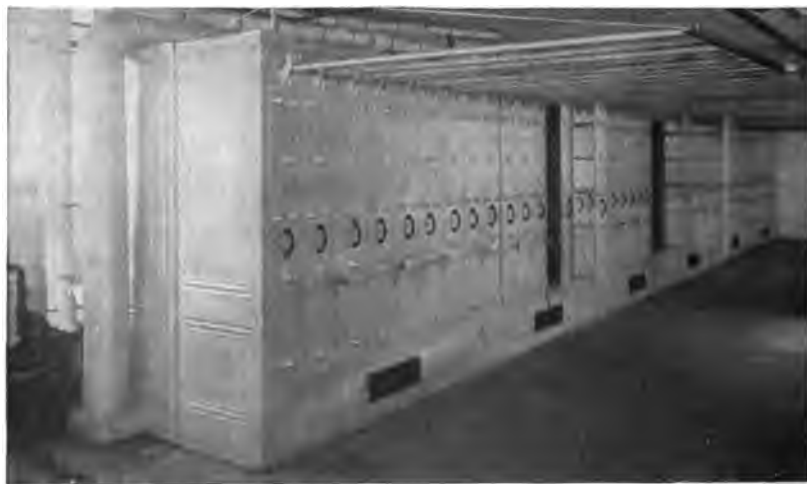
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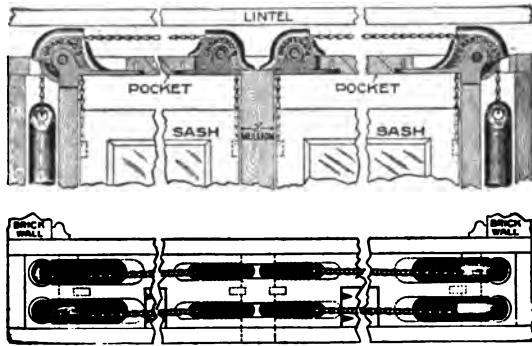
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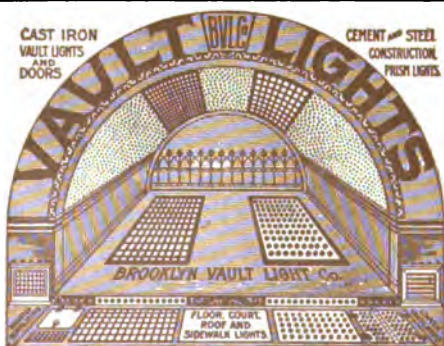
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